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MALTA FEVER

A REPORT OF THREE CASES

BY

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TULSA

This disease, known probably for a number of centuries, was first accurately described by Marston[1], himself a sufferer of the disease in 1863. Bruce[2] in 1886 by cultivation from spleen pulp was able to isolate and demonstrate the causative agent by reproducing the disease in monkeys. He described it as a small organism or micrococcus which was later named micrococcus melitensis. After isolation of the organism the source of infection in man remained unknown until the British government appointed a commission under the charge of Sir D. Bruce who, working from 1904 to 1906 on the Island of Malta, definitely established the epidemiological factor, namely ingested milk of infected Maltese goats. This commission reported also that the disease was inoculable into cattle, monkeys, horses and dogs. This disease endemic on the Island of Malta has been found to occur commonly along the shores of the Mediterreanean and in the tropics. The first case in the United States was reported by M. C. Craig[3] of the U. S. army in 1905. The patient was a nurse in Washington who had contracted the disease from nursing infected soldiers who had developed the disease in the Philippines. Ferenbaugh[4] of the medical corps U. S. army reported five cases occurring in Texas in 1911. All of these cases had worked with goats and drunk goats' milk. Following this report Ferenbaugh and Gentry[5] were detailed by the Surgeon General to make an investigation of the disease in Texas. Their investigation showed that Malta fever probably had existed there for about twenty-five years. Yount and Looney[6] reported five cases in 1912 occurring near Wagoner, Arizona. Yount[7] in 1913 reported five other cases found at Wilcox, Arizona. The first real outbreak, however, occurred at Phoenix, Arizona, in 1922, when more than thirty cases were positively diagnosed as Malta fever. These patients had been drinking goats' milk and were not identified with the goat-raising industry. The incidence of this outbreak is of considerable interest. The disease began the latter part of May, 1922, and was unrecognized as Malta fever until several months had elapsed, during which time the following diagnosis had been made: typhoid, rheumatic fever, malaria, septicemia and influenza. Thirty-five cases were found by September, a number of these being typical enough clinically to make a diagnosis without serological tests. The epidemic was traced to one dairy. The diagnosis was made difficult due to the fact that most of the patients were either children or tuberculars. Since then numerous cases have been reported from various sections of the country. The relationship of B. abortus and micrococcus melitensis was for a number of years unsuspected. In 1917 and 1918 Evans[10] after an exhaustive bacteriological study came to the conclusion that the organisms were either the same or closely related to each other. She further stated that the organism causing Malta fever was a rod and should be called a bacterium melitensis. In 1911 Shroeder[11] and Cotton, Smith and Fabyean[12] working independently established the fact that B. abortus was discharged in the milk in the San Francisco bay region. It may be stated generally that raw milk in this country, with the widespread abortion disease in cattle, regularly contains this organism. As a result of this fact considerable experimentation and investigation has been carried on to determine the danger of B. abortus infection in humans. Burnett concludes from a comparative study of both organisms that morphologically or serologically no observer can make any certain diagnosis, the only apparent difference being the greater susceptibility of the monkey to B. melitensis. This view has been corroborated by Auche[14], however, Evans states that there is a slight but distinct difference between the two organisms, which can be detected by agglutinin absorption tests. It may be of passing interest to note that among

laboratory workers infection with B. abortus is practically unknown, while accidental infection with B. melitensis is of frequent occurrence. The president of the American Bacteriological Society is reported as being ill at this time from laboratory infection.

PATHOGENSIS OF B. MELITENSIS AND B. ABORTUS IN GOATS AND CATTLE.

The infection in goats is in the udder where it produces a mild mastitis. It has been estimated that as many as 25,000,000 organisms of B. melitensis have been found in a cubic centimeter of the milk. The infection in cattle produces abortion mainly. The number of B. abortus has been estimated in the milk of infected cattle as about 10,000 per cubic centimeter. Experimental inoculation of B. melitensis into cattle does not produce abortion.

Up to five years ago all cases of Malta fever in this country were thought to be the same as those found in the Mediterranean countries. Keefer[8] reported first a case which he concluded was due to the B. abortus of Bang. Evans[9] cites some twenty cases in widely separated sections of the country more or less authenticated, of the human infection with B. abortus. We wish to add three cases reported in this paper as due probably to the B. abortus from ingestion of raw cows' milk. The New York Department of Health reported that from January, 1926, to March, 1928, twenty-four cases of Malta fever in all probability caused by the B. abortus occurred in New York state.

The Iowa State Laboratories[10] in a recent report showed that during a three months' period to November, 1927, the routine agglutination test for Malta fever was done on sera sent to them for Widal tests. The results showed forty-six positive Widals from forty-one cases and fifty-six positive agglutinations of Malta fever from thirty-one cases. They recommend a routine examination for Malta fever on all blood specimens sent to state or municipal laboratories for Widal tests. They advise further that a diagnosis be made only if laboratory and clinical findings coincide.

It follows therefore that the diagnosis, certainly of sporadic cases and in the majority of endemic cases, must be made through the utilization of the laboratory; namely by agglutination and agglutinin absorption tests.

Symptoms of undulant fever, while not particularly characteristic, are definitely pronounced. Most observers state that the incubation period varies from eight to fifteen days. The onset may be either gradual or acute, the characteristic features being a definite chill or chilly sensation, pyrexia, pronounced headache, insomnia, general muscular pains, neuritis, anorexia and depression. During the course of the disease chilly sensations may occur daily especially in the afternoons. The fever in a typical case occurs in variable periods from several days to several weeks and assumes a step-like course, reaching as high as 105 degrees. It then falls gradually and is remittent for two to four days. Following this a pyrexial relapse occurs and the same process is repeated indefinitely, the alternating recrudescence and defervescence lasting from two months to over a year. During the periods of fever, the respiration and pulse rate are increased, the latter being more marked. The patient during the fever periods appears quite ill; this being in marked contrast to the general appearance and feeling of well being during the period of apyrexia. The striking similarity to malaria in this respect is self-evident. Perspiration, at times of a profuse character commonly accompanies the defervescence of the fever. Cephalodynia and insomnia are features of the disease that are almost constant. Case number two in our series typified the distressing insomnia. General muscular pains and arthralgia are other constant symptoms. Arthritis affecting the large joints with swelling and no redness is at times characteristic. Depression almost amounting to a melancholia is frequently noted. Anorexia and a furred tongue are present usually. Either constipation or diarrhea may be present during the course of the disease. Among the physical findings enlargement of the spleen is almost always present. The enlargement is generally of a moderate degree. It is interesting to note that in case number three the spleen was palpable and slightly tender during the periods of pyrexia and not palpable during the periods of apyrexia. This is suggestive that the peculiar course of the disease depends upon massive dosage of the organisms occuring in the blood stream. The blood picture generally shows a normal leucocyte count, although a leukopenia is frequently encountered. There is a reduction in the neutrophiles and an increase in the lymphocytes up to 80 per cent. The erythrocytes and hemoglobin are definitely reduced, especially after the disease has existed for some time.

CLASSIFICATION

Castellani classifies the disease into four varieties. First, *typical*. The onset is accompanied by chills, headache, malaise, anorexia, gastric irritation, insomnia, muscular pains and general depression. The temperature increases each day for four or five days. The spleen is palpable and tender, the tongue coated dorsally, the edges red. All the symptoms grow worse with the rise in temperature. Either constipation or diarrhea may occur, the temperature ranging from 103 to 105 degrees. There may be a cough and some bronchial rales. This continues for ten to fourteen days and then the symptoms gradually subside and by another two weeks reach about normal, again to relapse after three to four days.

Second, the *malignant type*, characterized by a severe and sudden onset. All symptoms are intensified. There may be a basilar pneumonia, a typhoidal-like condition follows and the patient dies from cardiac failure.

Third, *intermittent type*, gradual in its onset, mild in its course.

Fourth, *ambulatory type*. The patient may show no symptoms, or he may complain of weakness and feel feverish at times.

DIAGNOSIS

Craig[3] in reporting the first case of Malta fever in the United States stated that a careful study by means of the Widal test and the agglutination reaction with micrococcus melitensis of many cases of obscure continued fever would show that Malta fever is not a rare disease in the United States and that many of the so-called cases of atypical typhoid are in reality those of Malta fever.

Rarely is the diagnosis of Malta fever made during its early course except where the disease is endemic. Its similarity to diseases such as malaria, rheumatic fever, typhoid, septicemia and tuberculosis is so striking that seldom is it thought of or suspected. Recently, Francis and Evans[4] have shown that not only does tularemia run a similar course but also that cross agglutination between B. tularense and B. melitensis occurs frequently.

SUSPECTED CASE

A study of this disease has led us to believe that some cases either febrile or afebrile have been undiagnosed or wrongly so. The following case history is probably of the latter class. Patient, a woman, 30 years old, weight 120 pounds, married seven years, no pregnancies. One year ago weight 160 pounds. Went on a starvation diet, lost 40 pounds in a short time. She had the usual diseases of childhood, no other illness. She has lived in Tampico, Mexico, for about [illegible] years. In November, 1926, she began [illegible] daily temperatures, a few chills [illegible] very little prostration. She came to Dallas where she was treated for [illegible] about two weeks. Intravenous and [illegible]ramuscular quinine was used heroically. The family moved to Tulsa, lived in a hotel, taking their meals outside. She came to the doctor's office November 30, 1926; at that time her temperature was 104.2 degrees, pulse 116, W.B.C. 5800. The physical findings were negative excepting an enlarged spleen. The lower border could be palpated at the costal margin. Tenderness was slight. She complained of pains in the hips, legs and intercostal regions. There were night sweats when the fever was high. No plasmodia were found, the blood culture was negative. Widal test for typhoid and the peratyphoids were negative in all dilutions. The urine was negative. Subsequent tests confirmed these findings. She was given 15 grains quinine dihydrochloride intramuscularly, which was repeated daily for six days. She went to the hospital December 7. She was given quinine to her toleration, a course of neosalvarsan was used, sodium cacodylate and also one per cent mercurochrome intravenously were tried at different times. Nothing affected the temperature. Prostration increased, anaemia became more marked. She died January 4, 1927, having developed bronchial pneumonia a few days previously. The cause of death was given as bronchial pneumonia, terminal to tropical malaria. There was a mental reservation regarding the latter. The graphic chart is from the hospital record.

TREATMENT

In view of the prolonged disability produced by the disease and the resulting economic loss, it appears strange that more time has not been spent in an attempt to perfect a cure. Text books sum up the treatment by stating that so far all measures have been exceedingly disappointing, and no specific measure has been found to combat this disease. Various anti-melitensis sera and vaccines have been tried without success. Treatment therefore, has con-

sisted solely of ameliorating symptoms.

The nature and behavior of the disease suggested to one of us the possible beneficial effect that immune serum may have on the disease. As a result of an investigation, a nurse in a local hospital was found, who had a rather severe case of Malta fever while she was in Arizona about one and one-half years ago. She volunteered to give some blood for the experiment. Twenty cubic centimeters of serum were obtained and injected intramuscularly to patient number three. The striking results obtained are to be seen in the accompanying chart. While it is true that this case was apparently of the mild type, it is, nevertheless, suggestive that the small amount of serum given had a definite therapeutic effect. The use of immune serum given in large doses and repeated frequently in the severer cases of Malta fever might be of invaluable aid in solving the therapeutic enigma attached to this disease.

The issue of treatment must, at the present time, therefore, confine itself largely to prophylaxsis. In as much as it is known definitely that the infection is transmitted by ingestion of goat milk, it is imperative that the drinking of goat milk, unless sterilized, should be discontinued. This is particularly true in localities where the disease is known to exist. Sufficient evidence has been accumulated to show that undulant fever has been traced directly to the ingestion of raw cows milk. This problem, which obviously is of vast importance is much more intricate and difficult of a solution. Septic abortion in cattle is widespread throughout the United States. The New York State Board has estimated that at least thirty per cent of the cattle of New York state are afflicted with this disease. While facts regarding its prevalence are not available in Oklahoma, it is known to exist extensively in Tulsa county.

Pasteurization of all milk, except in instances where strict supervision of the milk supply and serum reactions for B. abortus infection in cattle is carried out, would solve the problem. As pointed out previously in this paper certification of milk is of no avail in the prevention of the disease.

Lastly, some importance must be attached to the possibility of human carriers. It has been proved that the organisms of Malta fever are present in the urine of patients having the disease. Contamination from this source must be guarded against.

Case No. 1. Mrs. A. W., age 24, came to the hospital April 27, 1927, from a neighboring city. In January of that year she became ill. The symptoms were described as general weakness. Early in February she had a fever for ten to twelve days. This was followed by a period of no fever and apparent recovery. The temperature returned in a short time. There were a few chills. This febrile period was longer and had more marked symptoms. The disease was thought to be either typhoid or malaria. The temperature returned to normal, but pain and tenderness persisted in the lower abdomen. An appendectomy was done. Convalesence from the operation gave hopes for a complete recovery. However, the symptoms returned for a short period. She was treated for the usual diseases without a change in the course of the disease. In the next recurrence of symptoms she was seen by one of us in her home with her physician, who had not attended her in her early sickness. The physical examination was negative, a blood count was taken as well as a catheterized urine specimen. The urine was negative, the W.B.C. 6200. No diagnosis was made. She came to the hospital in Tulsa April 27. The temperature was 103, pulse 124, respiration 24, W.B.C. was 8500. There was profuse sweating and nausea and vomiting the following evening. Restlessness necessitated codeine for sleep at night. A catheterized urine specimen was entirely negative, even to culture. She complained of pains in the right abdomen, and in the pelvis. Physical examination showed the head, neck, teeth, throat, thyroid, lungs and heart free from any pathological findings. The abdomen had a scar from a recent appendectomy. The anterior border of the spleen was in the anterior axillary line. Some tenderness was elicited over the right kidney region. No pathology was found in the pelvis. Blood cultures on the usual media were negative after three days. No plasmodia were demonstrable. She was seen by several medical men, a few surgeons, and the urinary tract was checked by a urologist and the roentgenologist. The Widal tests were negative. Stool cultures for the typhoid group gave negative results. There was no cough and consequently no sputum. The chest was examined repeatedly for any signs of a lesion. None could be found. The second day there was a chill. The temperature mounting to 104.6. Sweating was extreme. The next three days showed no particular change. At the end of a week the temper-

ature was normal, or below. All the symptoms suggested a recovery. The apyrexia was followed by a second rise, but not so high, which in turn was succeeded by another decline. The clinical appearance of the patient improved strikingly with the decline of the temperature and pulse. Treatment was symptomatic as a diagnosis was not made. The undulating type of fever led to a search for some unusual disease that would explain the history. Serum was sent to the Chicago laboratories with a request for Malta fever tests. The report was positive.

The family was informed of the usual long course of the disease. They felt unable to meet the expense of hospitalization and left May 21. Some weeks later she was seen by a specialist in tuberculosis, who made a diagnosis of pulmonary T. B. The patient was removed to a southern state. No definite report could be obtained, but we were told that she died sometime in the following late fall.

Case No. 2. Mr. M., an attorney 50 years old, was seen by one of us December 7, 1927. He complained of a sore throat, an annoying cough and general aches and pains. There was a slight fever, the throat was red, the membranes red, and there were mucous rales about the hilus of each lung. The W.B.C. was 13,000. A diagnosis of influenza was made as we were having an epidemic of influenza. The temperature became normal in two days and he said he would leave for New York the following day.

The other of us was called December 16. At that time he was complaining of a cold and cough, weakness and exhaustion, frontal headaches mostly in the morning. Physical examinations were repeatedly negative excepting for fine crackles in the lower lobe posteriorly, and the left tonsil was septic.

He was under observation until January 6, 1928, when he left for Hot Springs, Arkansas.

During this time the temperature was of an irregular type ranging from 97 to 102. The blood picture was normal. A blood culture was negative. The urine was negative until the last ten days when there was a trace of albumen. There was some loss of weight. The impression was that there was a focal infection, apparently from the septic tonsil with the possibility of a septicemia.

The stay at Hot Springs was short. He entered a Kansas City hospital, where he was under the care of one of the city's ablest internists.

February 15, the following letter was received from the physician:

"Replying to your letter of the 10th, will say that Mr. M. has been a patient under our observation at St. Lukes Hospital for approximately a month. He has had a continuous low type of temperature with practically negative findings. His widal test has been repeatedly negative, blood cultures negative, leucocyte count between 5,500 and 7,500 only once being as high as 9,000 and we have spent hours searching for malarial plasmodium, but none were found. In fact, we gave him quinine for two or three days which had no effect whatever. The X-ray pictures of his chest were negative and the tuberculin test was also negative. On admission he had what seemed to be fairly typical rose spots and stool examinations showed positive for occult blood every day for the first ten or twelve days, since then it has been negative. His spleen could not be felt. His maximum temperature the first eight or ten days was 102 to 103, but for three days the latter part of last week the maximum temperature was 99.8. For the past three days the temperature has ranged from 99 to 100.4. His pulse is from 90 to 120. He is feeling very much better, less nervous and says he feels practically normal. This is about all the information I can give you at this time."

Later, the following communication was received:

"A couple of weeks ago I wrote you that our diagnosis on Mr. M. was typhoid fever. On account of the long duration and repeated negative Widals, and also the negative tests with the para typhoid A and B, he seemed to be at least an atypical case of typhoid, yet he at no time had a leucocyte count above 9,000, some definite spots on his abdomen and chest, and continuous temperature.

"I had in mind all the time the possibility of something else and finally became convinced if it was not typhoid, it was something I had never seen before. Thinking of the possibility of a Malta fever, we obtained some antigen down town and found the agglutination positive up to one to 500. Tests were then made with the serum of seven other patients and they all came out negative. We then sent some of Mr. M's serum to the United States Hy-

gienic Laboratory in Washington and received a telegram yesterday that the agglutination test for Malta fever was positive in one to three hundred and fifty. Rare as this disease seems to be, from the clinical course and from the agglutination tests, the diagnosis of Malta fever seems justifiable.

"He is feeling very much better and sits up a little every day. His highest temperature yesterday was 99.3."

During his stay in Kansas City there was almost constant sweating, frequent urination with some retention at times. Nervousness and insomnia were distressing. To secure sleep he was given sodium luminol gr. IV medinal gr. X, paraldehyde drachms VI and morphine sulph gr. 1-2 in one night. He slept four hours. The next night the same medication was given except a grain of morphine was used.

The demand for sleep seemed greater than the danger from the drugs. He was put on a diet of cream soups, cooked cereals, fruit juices and fed every one and a half hours; 2500 calories was used at first, which was raised to 3500. Loss of weight was small.

About the first of March he developed some mental confusion, and the patient feared he was losing his mind.

He returned to Tulsa March 9, and is under the care of the one who first saw him. The trip home, the meeting of some friends, and business worries may have been incidental to an exascerbation of symptoms and added mental confusions. Fearing that the hypnotics might be a factor in the neurosis a gradual reduction of the drugs was begun. Insomnia and confusion were troublesome until the temperature returned to near normal a month ago. Improvement has been gradual since that time. At present the mentality is clear, he sleeps about seven hours out of the twenty-four, walks up and down stairs, walks some out of doors, rides in the car, takes daily sun baths, has a good appetite and has regained eleven of the thirteen pounds loss of weight. He is getting from 15 to 40 grains of bromides and about 6 drachms of paraldehyde per day. Faster reduction results in nervous "blow ups."

The heart rate remains high, varying from 100 to 140. The blood pressure a month ago was 110-78. It is now 124-88. The sounds are good, the rate regular, and there is no dyspnoea from his limited exercise.

Case No. 3. T. F. S., age 57, a writer of newspaper editorials was seen on February 18, 1928. Except for occasional colds, malaria and jaundice twenty years ago, he enjoyed good health up to about February 8, 1928. At that time he began to feel tired, was slightly nauseated, and unable to sleep. He had some headache, and chilly sensations over the body, these occuring frequently during the subsequent course of the disease. He knew he had a high fever, but did not take his temperature. These symptoms were present for the following ten days, during which time he worked a few hours each day. On the sixteenth he decided to go to bed, thinking he would be up in a few days. He complained further of aching in the joints, loss of appetite and sweating. The symptoms continued, the temperature ranging from 98.8 to 102.4 until March 12, 1928. During the next three days his temperature was normal, the appetite was improved and the nausea, sweating and aching had practically disappeared. The symptoms then recurred, but were of a milder degree and the temperature range was lower until March 26, when he was given twenty cubic centimeters of immune serum intramuscularly, in the morning. That afternoon his temperature rose to 102.8; the following day the highest was 100. Since then up to the present date he has remained free from fever and symptoms.

Examination when first seen revealed that the patient did not appear very ill; the head with the exception of a thickly coated tongue and a moderate degree of gingivitis, was negative. Heart and lungs were negative. The abdomen was slightly distended and tympanitic, no tenderness. The liver was not palpable. The spleen was palpable and tender. It extended well below the costal margin on deep inspiration. The kidneys were not palpable. The urine was negative. W.B.C. 6500; neutrophiles 56; mononuclears 44; hemaglobin 80; R.B.C. 4,500,000. A Widal for typhoid, para A and B was negative. A blood culture was negative also. On February 28, 1928, ten cubic centimeters of the patient's serum was sent to United States Public Health Department at Washington. The report showed a positive agglutination of both B. melitensis and B. abortus in a dilution of 1:640. Later, Dr. Nelson, bacteriologist at St. John's Hospital, obtained an agglutination with the same serum in a dilution of 1:640 with a mixture of 10 strains of B. abortus. The clue as a pos-

sible Malta fever in this case was obtained from the somewhat like behavior of case number two. Attempts to grow the organism from the blood and urine failed.

The patient never drank goat's milk. He was in the habit of drinking one-half to a pint of raw cow's milk daily, never ate cheese and used butter in small quantities. This patient and case number two took milk from the same dairy. The dairyman stated that he had no abortion among his herd. An investigation showed that two years ago he had some goats on the farm. The possibility of infection in the cattle from this source may be enlightening. We are attempting in conjunction with the city health department to further determine the probabilites involved.

MORTALITY

The mortality rate is low, averaging about two to four per cent in the epidemics that have been studied.

PATHOLOGY

The pathology can be summarized in the fact that the disease is a bacteriemia. The toxins may affect the organs differently, varying with the severity, whether acute or chronic, short or protracted. The low death rate makes autopsy material scarce. There is a degenerative action upon the red cells, and the phagocytic action of the white cells is lessened. In acute cases the spleen is enlarged, soft and dark, weighing about 200 grams. In chronic cases its weight may exceed a kilogram. There is a congestion of the kidneys affecting the glomeruli especially. There may be ulceration of the intestines. There may be congestion and increase of lymphoid tissue. The mesenteric glands when enlarged will give positive cultures of the bacteria. No findings are constant.

SEQUELS AND COMPLICATIONS

The disease may be followed by neurasthenia and despondency. Myocarditis of varying degrees may result. Not a few have become narcotic addicts from taking sedatives, from the arthralgia and neuritis over a long period. The use of hypnotics for pain and insomnia has led to trouble. Muscular atrophy, asthenia, neuritis, impaired memory are listed among the results. Complications include orchitis, probably the most common, bronchitis, pneumonia and myocarditis. Diarrhea, vomiting and very high fever may have dire results, ulcers may occur in the gut track with hemorrhages, making a diagnosis of typhoid seem logical.

COMMENT

1. Malta fever was recognized but not completely described over two thousand years ago. At first it was thought to be confined about the Mediterranean countries, the tropics and the Southwestern United States. Recent evidence shows that the disease is widely distributed over the other states.

2. It has been proven that the goat is the host of the B. melitensis and the disease is transmitted through the ingestion of goats' milk. Cows are hosts to the B. abortus. The organisms are found in the milk of infected cows, although fewer in number than its allied group found in the goat. Most workers believe that the B. abortus may cause human infection, but there is some controversy regarding this claim. Apparently our cases belong to the B. abortus group.

3. Diagnosis is based finally upon agglutination, and agglutinin absorption tests. The clinical course not being definitely characteristic may similate either septicemia, tuberculosis, typhoid, malaria, neuritis, rheumatic fever or tularemia.

4. The treatment is largely symptomatic, no drug seems to affect the clinical course of the disease. The results obtained by immune serum in one of our cases warrants no conclusions, but deserves further trial.

5. We believe that Malta fever in Oklahoma is not a rare disease, and that agglutination tests on continued or intermittent fever cases, will reveal many positive cases.

6. So far as we know no other cases have been reported in Oklahoma.

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NOTE—Two other cases have been found since this paper was prepared.

THE EVOLUTION OF THE PSYCHONEUROSES

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The object of this paper is to stimulate a more critical scrutiny of that large group of patients that consult doctors for nervous complaints. The majority of regular medical practitioners by reason of their education and training think and act largely on the basis of disease in a physical or organic sense. The patient's ideas about his status seldom get a hearing and usually exert little or no influence in the diagnosis and treatment. It follows quite logically that often it is the *disease* and not the *patient* that is under treatment. Since the apparent disease may have no existence except in the patient's ideas about the matter the results are frequently unsatisfactory.

Where the nervous or mental element is obvious the patient is usually told three things, either singly or in combination. These are: "You are a case of nerves"; "You only imagine you are sick"; "Go home and forget it". These phrases are not original with me. They are put down quite verbatim from conversations with patients, and in a majority of instances they were followed by: "I guess I know when I'm sick; I've got a pain and it is not imaginary either." These are the patients that practitioners tell me clutter up various waiting rooms in more or less rapid succession, and finally or in between their medical shopping excursions have paid most of their ready cash to the chiropractor. They compose a large proportion of the clientele of all irregulars and it is not to our credit that this should be so. Medical men must realize that their ministrations should often include mind as well as body. Sound therapeutic measures for the psychoneuroses rests on a knowledge of the etiological factors and an understanding of, if I may use the vernacular, "How do they get that way?"

Life is a perpetual struggle. This holds for all forms from the lowest unicellular organisms to man, the most complex of all. Since perfect control of environment is not possible life must either wreck itself against the unfavorable factors or submit itself in the least harmful fashion. This latter alternative process is adaptation and is universally in operation. Adaptation is accomplished by unitary action of the whole organism. This can be brought about in the higher forms of life only by some coordinating mechanism that can bring the various organs and tissues into an harmonious action. This is the primary function of the nervous system. By nervous system I include the brain, spinal cord, the sensori-motor and sympathetic-autonomic structures, and the endocrine glands.

The singleness of purpose required of any given organism for successful adaptation is more easily acquired as we go downward in the scale of life. This naturally results from the simplicity of requirements on the one hand and lack of complexity in the coordinating and coordinated structures on the other. Trouble is more likely to occur in the higher forms, and reaches its optimum prospects in man because he stands at the pinnacle both in things necessary for his complete happiness and in the elaborateness of the machinery that must be put into motion to acquire them. A modern wheat combine is more liable to functional derangement than a sickle.

A considerable part of adaptation activities in animal life and during the early years of human life are instinctive and does not require conscious control. That there is conscious evaluation of the elements that best satisfy the organisms fundamental needs is obvious from the food and housing habits of animals and by the lusty vocal protests of infants and young children. As a result conduct and affective emotional types become established. The thing which we call personality gradually evolves and becomes relatively fixed. One prominent writer thinks that we become largely a creature of reflex action by the time adult life is attained. We certainly do many things in what amounts to a reflex manner. Take the matter of nutrition as an example. A visceral sensory impulse which

we readily interpret as hunger causes us to pause quite rhythmically in either work or play to satisfy it by eating. The whole process is ordinarily one of pleasure and in the majority of individuals requires little conscious direction. Consider the vast difference in the emotional affect between a man whose efforts have placed him far beyond the possibility of care as to where his next meal is coming from and the individual out of a job who remarked, upon hearing the noon whistle: "For most folks that means dinner, for me it is only twelve o'clock." Suppose now that the care-free individual becomes afflicted with some metabolic disease that requires some hitherto undreamed-of restrictions on his dietary habits. Let it be diabetes. He must now exercise constant volitional control within a relatively narrow range of foodstuffs in contrast to his previous free choice of all that the market afforded. Here is where his reaction pattern will determine his action and attitude. Some will gladly lend their cooperation; others will say that they would rather be dead than to deny themselves this or that favored food, and in proof of their sincerity and depth of their statement proceed to eat themselves to death. With appropriate variations this food story holds for all the material affairs of life.

Physical life depends largely on physical means for its maintainence, all of which as suggested, must pass either consciously or unconsciously the censorship of the mind and be accepted or rejected from the standpoint of satisfaction. Mental life functions on a pabulum of ideas: they enter the mind over the sensory pathways and may originate either in the bodily soma or in the external environment. The physical existence goes on largely outside or beneath consciousness; we are seldom aware of digestion, respiration, circulation, etc. We are not particularly disturbed by dusty air until a particle lodges in the conjunctiva and yet we feel the need of a physical cleansing at the end of a dusty day to remove the innumerable particles that have been deposited on our bodies in a very real fashion, but whose presence, compared to the one in the eye amounts to nothing in the sum total of our comfort.

In like manner we are under constant ideogenous stimulation. To think of nothing is impossible. For the most part the assimilation or disposal of the ideas that reach the higher centers of the nervous mechanism goes on in a manner somewhat comparable to the physical bodily processes just enumerated. It may be entirely below the conscious state or level of awareness. However, let something cross the threshhold of consciousness that has large affective emotional value and it at once dominates mental activity. It may be either of pleasurable content or of a nature to inflict unhappiness and ultimate discomfort on the individual. Since mind and body are indissolubly linked the body shares in the net effect. This is indeed an old story and has been placed on a solid foundation by the work of Pawlow and Cannon in particular.

It is my hope that what I have said thus far has, so to speak, set the stage for the elucidation of the mechanism by which the various functional nervous disorders, collectively spoken of as the psychoneuroses, or their conversion phenomena come about. The extent and locus of the disbursement of the emotional affect upon the somatic portions of the body will determine whether the patient presents himself as a pure neurosis or as a combined nervous-visceral entity or possibly what appears to be a definite organic case. I think I can best proceed by illustrative case sketches:

A middle aged farmer complained of nervousness limited to a subjective feeling of uneasiness, insomnia and loss of appetite. The physical and neurological examinations were negative. Investigation disclosed that the trouble had a definite date of onset and that this followed closely upon the loss of money in a land deal. This is nothing more than exaggerated simple worry and represents an example of a relatively early stage in the evolution of a psycho-neurosis.

The next case shows the result of repression and partial conversion to a vicious syndrome:

A man 38 years of age, no occupation at present and for two years previously other than occasionally playing the stock market in a small way, and always successfuuly, presents himself with the complaints that he is afraid he is going to murder his wife and three children, and occasionally palpitation of the heart. He stated he had nothing bothering him now. "I got rid of all worries years ago." The essential facts are that at age of 28 he had married a moron girl of fifteen. He soon tired of her but because she had given birth to his three children he could not tolerate the thought of divorcing her. Six years previously she had started divorce proceedings under the mistaken notion that she was to be deserted. He pacified her and soon "forgot it." About this time a nearby neighbor killed herself and children He promptly absorbed the suggesion as a solution of his problem. The conflict here is the continued dissatisfaction with the woman of his choice and his wish to rid himself of her. which is

completely blocked by his regard for her in the mother role. The suggested release by murder is a conversion to a but slightly less painful idea. The emotional affect is gradually being fixed through subconscious channels on his heart. The first doctor who tells him he has heart disease will complete the somatic transfer and make him a cardiac invalid until he is permanently separated from his wife.

The following case shows how the affect, that is the thing the patient complains of, may have no conscious connection with the real cause of the trouble:

A young woman school teacher 25 years of age has for some months complained of weakness and a feeling of depression. A little more than a year previously she had had a pleurisy with effusion which had yielded nicely to a four months' course of bed rest. Her cure was complete and repeated expert clinical and X-ray examinations failed to reveal any trace of active disease. I had seen her once in consultation and made a diagnosis of an undifferentiated psychoneurosis. Some weeks later I was invited to take care of her. It was soon evident that the cause of her trouble was buried deeply. After about ten days of analytical conversations a lead was uncovered that promptly led to something which she refused to discuss. She lay in bed twelve days thinking about it with every evidence of great emotional stress and finally with considerable display unburdened her mind. She had been a masturbator for some years up to age of sixteen and through reading some quack literature she had acquired the notion that she had ruined herself as a prospective wife and mother. Her mental condition previous to the attack of pleurisy had been one of active concern; the rest cure had subconsciously suggested a way out, that of permanent semi-invalidism. She began to teach in one month, and has remained well for two years.

One more case that, for obvious reasons, I will not soon forget, will show that these things are of serious import to the patient:

A chemical engineer, a university graduate 32 years of age, came in with torticollis to the left. Two years previously his wife lay dying from a peritoneal carcinomatosis. The patient was kneeling at her bedside and in order to avoid her gaze he turned his head to the left. It continued in that position to the end of his life. He thought that the cause of his wife's death was a neisserian infection of his youth. He had been repeatedly told by good men that he had no trace of the disease and the fallacy of his ideas had been pointed out to him without avail. Obviously, since he was apparently amenable to reason, but could not apply it to his situation to his relief, there must have been some other factor in operation. There was; during a lovers' quarrel in their early married life, he had a transient wish that his wife would die. This information was obtained in his case by dream analysis. The recurrence of this death wish was so intolerable that he could not be carried on any further. He had been threatening suicide, and two days later shot himself, after sitting up all night and carefully arranging his business affairs. Here is a case where a man's ideas killed him. He was not insane; he discussed the matter of suicide in reasonable calmness and deliberately chose that method as an escape from a situation composed entirely of erroneous mental concepts, but which to him were very, very real and painful.

In order to bring out the purpose of my paper I have unavoidably overstepped mildly into the realm of psycho-therapeutics. It is not my intention to follow this up, but the last case requires me to state that treatment is individual and selective and like the surgeon in his operative work, there is often an unavoidable element of risk involved that mitigates against a favorable outcome.

The first stage in the evolution of the psychoneuroses is doubt; a state of uncertainty. This leads to fear and unassuaged fear is worry. Worry is probably the earliest clinical expression and manifests itself fairly true to type as a rule. The prevalent notion about worry is to "forget it." This is equivalent to losing a portion of the brain and is therefore an impossibility. Repression is applied and as a result the patient believes he has *forgotten* his troubles and smiles once more. Repression has very distinct limitations, especially with matters that carry with them a large load of affective emotion, which is affective nervous energy and eventually will require expenditure. This initiates conversion and the visceral or somatic fixation determines what the patient complains of. When the affect is completely dissociated from the cause by long standing fixation or repeated transfers these patients lose much of their nervous instability and come to complain only of some somatic disorder. This represents the end product of the developmental process, namely hysteria, the most common disease in civilized society.

Some believe that the people who develop these conditions are different in some way. This is the notion that by heredity they are predisposed or predestined to nervous and mental abnormalities. This belief will not withstand impartial criticism. The best answer for me at this moment is that the individuals making up the great bulk of those suffering from the psychoneuroses come from the rank and file of humanity that are doing the world's useful work. I do not deny that there are certain types of congenital psychopathic individuals, but they are distinctly outside the pale of this discussion. Also a proportion of the psychoneurotics will, if not

properly cared for, evolve into true psychoses. Their prognosis then is somewhat unfavorable and their treatment a much greater problem. It should be the office of the physician to anticipate and, if possible, to avoid these unhappy end results. The early warning signs are either in evidence or easily discernible for him who has eyes to see.

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RINGWORM OF THE HANDS AND FEET

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In 1869 Hebra described a condition of the upper inner thigh and groin which he called eczema marginatum and soon thereafter Pick, Kaposi and others proved this disease to be a mycotic infection. The condition has commonly been called jockey strap itch, or Dhobie itch. In 1908 and 1910 Sabouraud and Whitfield independently described the disease as it occurs on the feet and hands. In this country the papers of Ormsby and Mitchell[1] and C. J. White[2] first described the condition and since that time eczematoid eruptions of the hands and feet due to fungus infection have been recognized with increasing frequency until the disorder has become established as one of the most common of the cautaneous diseases. This disease, called epidermophytosis or dermotophytosis, is prevalent throughout the country, but is extraordinarily common in the southern states. From May to October this condition is present in fully fifty per cent of the people who consult me. A disease so prevalent in Oklahoma is worthy the serious study of all medical men.

While it should be pointed out that epidermophytosis frequently affects the groin, and commonly enough the axilla and other parts of the body, in this paper the disease will be considered only as it affects the hands and feet.

ETIOLOGY

Sabouraud described epidermophytosis of the crural region caused by the epidermophyton crusis, whence came the name of the disease. While the same fungus may be the cause of the disease as it affects the hands and feet, many other fungi are causative also. Nor is it certain that bacteria may not be the active cause in numerous instances. The complexity of this phase of the subject is emphasized by a perusal of Weidman's[3] paper. For our purpose here, it may be stated that the disease is due to pathogenic fungi of numerous varieties, the complete classification of which will in due time be set forth by the mycologists. From a practical standpoint the points of interest are how one contracts the disease, its clinical recognition and its treatment.

Epidermophytosis is distinctly seasonal, being most prevalent during the summer months and in persons who perspire freely. Untreated, it is chronic, usually subsiding during the cold weather only to reappear with the advent of spring.

Epidermophytosis is so common among members of the country clubs about Tulsa that it is popularly known as "golfers itch." The floors of shower baths are frequent sources of infection.

Wool and leather are also common sources of infection. Many instances of the disease can be traced to the use of such articles as suspensory bandages, athletic clothes, baseball gloves, bathing suits, handles of golf clubs, shoes and boots, towels, soiled underwear and the like. The fungi are extraordinarily resistent and the ordinary process of laundering does not appear to destroy them. A case of my own illustrates the vitality of the fungus. A man with epidermophytosis of the feet was clinically cured, but had a recurrence after donning a pair of hunting boots which he had not worn for eleven months.

The above mentioned sources of the infection could be much amplified, but enough has been said to point out that one does not contract the disease directly from another person, but through some inanimate object.

SYMPTOMS

The subjective symptoms of epidermophytosis are few. Itching is often present and may be intense. Pain is frequently severe in the fissured type. The guises in which the disease attacks the hands and feet are as follows:

1. Vesicular.
2. Scaling.
3. Macerated.
4. Fissured.
5. Callous.
6. Keratotic.

The first three are the types most seen.

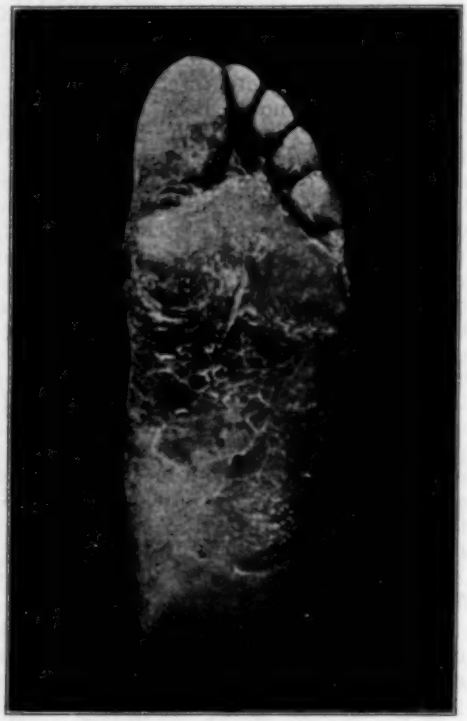
1. *The Vesicular Type.* This is the most frequent manifestation of the disease and is generally limited to the lateral aspect of

EPIDERMOPHYTOSIS

the fingers and toes and to the palms and soles. The vesicles are deep seated, round and average one millimeter in diameter. They frequently have a dark blue center, an important diagnostic point. While they tend to be discrete, coalescence is sometimes noted, most often on the palms. The vesicles soon rupture on the fingers and toes because of the thinness of the skin leaving raw oozing tender eczematous surfaces. On the soles where they most often are seen on the arch of the foot they also rupture and if the area involved is great, walking is a painful process. The palmar vesicles do not so often rupture, due to the thickness of the stratum corneum. Most often they are absorbed.

2. *The Scaling Type.* This form of epidermophytosis may be primary, and is often so insignificant that close observation is needed to disclose them. The scales are small, white and rather easily removed without bleeding occurring. The junction of the toes with the foot proper and the fourth interdigital space of the foot are the favorite locations of this lesion. The scaling type is usually a secondary lesion or occurs on connection with one of the other types. Vesicles often rupture leaving a tiny collarette of white scales to mark the site of the primary lesion.

3. *The Macerated Type.* This form is most common in the webs of the toes and less so in the webs of the fingers. The clinical appearance is unique. The fourth toe spaces present the condition most severely as the small toes are generally pushed around so as to lie partly under the fourth toes and the sweat having less opportunity of dispersion the tissues are water-soaked, forming an ideal medium for fungus growth. The epidermis is dead white and lardaceous, and occasionally a lump of it can be quite easily detached. This is often call a "soft corn" by the laity and by chiropodists.



EPIDERMOPHYTOSIS

The other types of epidermophytosis affecting the hands and feet are much less common than those described. Cutaneous fissures occur chiefly across the webs of the toes or at the junction of the toes with the ball of the foot. Translucent canary yellow callouses occur on the heel, ball of the foot or the inner aspect of the great toe. In the keratotic form split pea sized keratoses, suggestive of arsenical keratoses, occur upon the palms and soles.

Fungus infection of the nails often oc-

curs and affords a therapeutic problem of the greatest dificulty. The nails are thickened, opaque, dirty gray or yellow, friable, and usually pitted or striated vertically. A severe paronychia of mycotic origin has also recently been described by Kingery and Thienes[4].

DIAGNOSIS

The diagnosis is generally readily made from the clinical appearance. If one is uncertain, recourse can be had to cultures on Sabouraud's medium, or to the examination by the alkali technic. In this latter procedure scrapings from the lesions are placed upon a glass slide or the top of a vesicle removed and placed bottom side uppermost on a slide, and a few drops of ten per cent sodium hydroxide added. A cover slip is applied and the slide is warmed to hasten the keratolytic action of the alkali. Mycelia and "yeast" cells may then be found on microscopic examination. In connection with this laboratory procedure, however, it should be pointed out that in many instances of clinical epidermophytosis it is impossible to find the fungus except on frequent and prolonged examinations.

TREATMENT

The patient should have a careful explanation of his disease, that it is infectious and communicable to his intimates. If the manner in which the disease is contracted is told him he will avoid shower baths and will use only boilable clothing next his skin. He should use paper towels. When clinically cured he will destroy his shoes, gloves, etc., and procure new articles of wearing apparel. Thereafter he will wear wooden sandals when using shower baths.

In the local treatment of the condition a host of drugs have been tried; always a sign of therapeutic weakness. Many cases clear up with a given remedy, while others do not respond at all to the same therapeutic agent, and some still have their disease when the pharmacopeia has been exhausted.

In the vesicular type the vesicles may be opened antiseptically and hot soaks of potassium permanganete 1:1000 applied. In moist or macerated areas crude coal tar ointment often does well. The classical treatment of the scaling, fissured and keratotic types is with Whitfield's ointment:

Salicylic acid	gr.	XV
Benzoic acid	gr.	XXV
Petrolat	ounces	I

Practically I find this ointment only useful when the amount of salicylic acid is much increased.

I find the X-ray of great service in those cases associated wtih hyperidrosis.

A word of caution may be added about the treatment: many of the drugs now used, particularly the volatile oils and chrysarobin, should be used with caution, as they not infrequently give rise to a dermatitis worse than the original disease.

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PERNICIOUS ANEMIA*

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Definition: The clinical entity, pernicious anemia may be looked upon as an anemia of unknown origin, affecting primarily the blood, the gastrointestinal and the central nervous systems, and progressing, usually with remissions, to a fatal issue.

Incidence: Pernicious anemia is essentially a disease of late middle life, although it may be seen at any age. Though cases have been reported throughout the civilized world, the greatest prevalence seems to be in the eastern and northern parts of the United States, and the northern part of Europe, the Nordic races being especially prone to develop the syndrome. Blondes are more often affected than brunettes. The incidence is slightly higher in males than females.

Etiology: The past few years have brought to light a mass of information concerning the causative factors in the production of Addisonian anemia. The results of the many investigations have been conspicuous because of the negative findings:

In his recent excellent review Wintrobe considers two possible theories: first, gastro-intestinal infection or toxemia, and second, dietary or vitamin deficiency theory.

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The gastro-intestinal infection or toxemia theory is based chiefly upon the laboratory observation of true achlorhydria, a condition that often precedes by many months the appearance of the classical syndrome; and one that persists even after disappearance of subjective and the other objective findings following liver feeding. The hereditary or familial feature of the disease has some support in this theory, as it has been found that in some of the cases there is a familial tendency to achlorhydria. When one recalls the functions of the hydrochloric acid, it is not difficult in the absence of hydrochloric acid to visualize the occurrence of bacteria higher in the gastro-intestinal tract than normal; nor can one fail to realize the possible formation of toxic amines as a result of incompletely split proteins. The possible offending organisms that have been investigated are too numerous to consider at this time. Suffice it to say, fungi, spirochetes, hemolytic streptococci, bacillus coli, bacillus proteus and bacillus Welchii have been studied and found wanting. It is of interest to note that biological studies of bacillus Welchii have revealed the formation by this organism of a hemolysin, a neurotoxin, and butyric acid.

In most cases a history of dietary indiscretions, extending over a period of years, can be obtained. The patients usually give a history of eating scantily of red meats, with an excess of fat, particularly that derived from dairy products and pork.

Koessler and Maurer believe the disease to be due to a vitamin deficiency. They would consider the clinical picture a result of a shortage of vitamins A, B and C. The blood changes they believe are attributable to a lack of vitamin "A", the nervous manifestations to a diminution of vitamin "B" and the hemorrhagic tendencies to a shortage of vitamin "C". They claim very good results in the treatment of cases of pernicious anemia with a diet rich in these vitamins.

The vitamin or dietary deficiency theory has been further advocated since the advent of the Minot-Murphy modification of the Whipple diet. However, recent investigations of Minot and his associates would eliminate the probability that vitamin deficiency is a direct cause. The nature of the substance in liver that produces such dramatic alterations in the general picture of the disease is not that of vitamins.

Pathology: At autopsy there are a few characteristic anatomical findings. There is a peculiar orange yellow color of the panniculus. The bone marrow is usually hyperplastic. The normal fat is replaced by red marrow. In those cases dying from an aplastic anemia, the marrow may be sclerotic. All organs, including the liver, lungs, spleen, kidneys, and at times the brain and cord are the sites of hemosiderin deposits. Fatty deposits present in the heart give rise to the descriptive term "tiger lily" heart.

The mucosa of the gastrointestinal tract shows a marked atrophy. This is most striking on the tongue, in the stomach and the upper intestinal tract. Eighty-five per cent of the cases show degeneration of the posterior and lateral columns of the spinal cord. This is usually seen in the cervical and upper thoracic region Occasional similar lesions are found in the brain substance.

Course: Pernicious anemia runs quite a variable course. Some patients live eight or ten years after the onset. A few cases have been reported in which the condition was known for twenty years. These are exceptional as the average duration for life is three to five years. There is an occasional case that runs an acute course, the patient dying within a few months. The classical picture is that of progesssion, with periods of remission, alternating with periods of relative freedom from symptoms, death resulting from anemia.

Tuberculosis is a rare complication. The patient usually presents himself to the doctor during an exacerbation. But during remissions he is relatively free from any symptoms, and a diagnosis is made only after a careful physical examination, the finding of megalocytes in the blood smear, or the discovery of a true achlorhydria.

Symptoms: In addition to the symptoms common to all anemias, other symptoms may be divided into: first, those referable to the gastro-intestinal tract; second, those attributable to the central nervous system, and third, those pertaining to the cardio-vascular system.

Of the gastro-intestinal symptoms the most common anamnestic finding is a story of intermittent sore tongue. The patient will admit having had a glossitis of several years duration, situated around the borders of the tongue. They complain also of tingling sensations in the tongue.

Gastric symptoms of anorexia, eructation, heart burn, and nausea are not uncommon. In practically all cases a history of diarrhea will be obtained. They frequently present themselves with this symptom as the chief complaint. The stools are loose and watery. There is no dysentery. The symptoms referable to the central nervous system are those associated with posterolateral sclerosis. Tingling sensations, numbness, and paresthesias of the extremities are most common. The chief circulatory manifestations are those of cardiac pain. Coombs in a recent review has found that true anginoid attacks are occasionally encountered.

Physical findings: On physical examination one sees an individual who in spite of his complaint of marked weakness seems well nourished. In fact he is without emaciation and has lost very little weight. The hair, as a rule, is prematurely gray. There is a peculiar lemon or grape fruit color of the skin even though the sclerae may be without jaundice. The mucous membranes show a marked pallor. It is this pallor together with the lack of emaciation and the yellow skin that differentiates pernicious anemia from any other diseased condition. The tongue may be reddened on the margins, or, if the case is an old one. it will present a smooth, pale and atrophied appearance. Hemic murmurs may be found on examination of the heart. There is a loss of vibratory sense, as demonstrated by placing the tuning fork over the tibia. Localized or generalized edema may be found. Some cases run a febrile course not unlike that of mild tuberculosis. The blood pressure is low and the pulse is rapid.

Blood: There is a reduction of erythrocytes and to a less degree a reduction in the hemoglobin giving rise to a high color index. The leucocytes are reduced in number at the expense of the polymorphonuclear elements. In general it may be said that the platelet count coincides with the remainder of the formed elements. The blood smear is quite characteristic. Every variety of erythrocytic change will be seen. However, while the secondary anemias are marked by a tendency to microcytosis, the cells of pernicious anemia tend to be larger than normal. Instead of a normal measurement of 7.4 to 8. micra, the cells in pernicious anemia range from 8 to 13, with a median of 10 micra. The resistance of the red blood cells to a hypotonic salt solution varies. In some it is found to be increased, and in others it is decreased.

Chemistry: The sugar, chlorides, calcium, and nitrogenous elements of the blood are not altered in pernicious anemia. Gorham and Myers have found low cholesterol values in some cases.

Biliary pigments: The biliary pigments in the blood and in the stools are moderately increased. The icterus index of the blood is above normal and falls in the range of latent jaundice. This observation serves to differentiate pernicious anemia from the secondary anemias as in the latter conditions the icterus index will be below normal. The Van den Bergh reaction direct is negative, while the indirect is increased, thereby placing the anemia in the hemolytic rather than in the nonhemolytic group. Urobilinuria is found at times and there is an increase of stercobilin. These facts further corroborate the theory that in pernicious anemia there is increased red blood cell destruction, that, as a result of this increased cell destruction there is an increased formation of bilirubin by the reticulo endothelial system. that the liver is unable to take care of this excess of bile pigment, and the overflow is circulated in the blood stream and is discharged via the stools and the urine.

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THE KETOGENIC DIET IN EPILEPSY

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Epilepsy is not a disease entity. It is a syndrome due to many causes. A thorough study of each patient must be made. Such a study should include: (1) a physical examination; (2) a neurological examination to exclude organic disease of the nervous system. Such a study will include a blood Wassermann, a spinal fluid Wassermann, a complete examination of both

blood and spinal fluid, an examination of the stool for parasites, an examination of the urine, x-ray of the head and gastro intestinal tract, an investigation to discover any psychogenic factors.

The history of epilepsy is long, that of the ketogenic diet short. However, in a condition long regarded as incurable a method of treatment without the use of drugs which accomplishes a fair percentage of vastly improved cases is worthy of serious consideration. The origin of the ketogenic diet treatment goes back to 1910. In that year Guelpa and Marie, French clinicians, discussed fasting in the treatment of epilepsy. This method produced the state of ketosis which is the basis of the ketogenic diet. In the absence of sufficient carbohydrate and protein the body fats are utilized and the state of ketosis produced. Obviously ketosis thus produced is not satisfactory as a prolonged treatment. Epileptic attacks in children were prevented while on starvation, but attacks recurred upon the resumption of feeding. Wilder in 1921 first suggested the use of high fat diets in the treatment of epilepsy. He had been working on their use in the treatment of diabetes mellitus. In 1921 the use of the diet was begun in the Mayo Clinic. The results in adults were indifferent. Helmholz and Peterman utilized the diet in children. Five years' experience showed 31 per cent of children with idiopatic epilepsy had had the attacks abolished. There was definite improvement in 23 per cent bringing the per cent benefitted to a total of 54. In the other 46 per cent there are many cases reported as temporarily improved.

The essence of the diet is the feeding of a high per cent of fat with a minimal amount of protein and carbohydrate foods. The object of the diet is to produce ketosis as shown by the presence of diacetic acid and acetone in the urine. This state is reached when there is incomplete combustion of fat. So long as there is one gram of carbohydrate available for four grams of fat in the diet, the fat is completely burned to carbon dioxide and water. If the ratio of 4 to 1 is increased to the ratio of 5 to 1 the fats are incompletely burned and acetone and diacetic acid will appear in the urine. Large amounts of acetone and diacetic acid may be excreted in the urine for weeks or even years without any untoward symptoms.

The preparation of the diet for two weeks should be in the hands of a competent dietitian. The basal metabolic requirement is determined from the Dubois normal standard. To this is added 30 per cent for maintenance and growth. Following items are provided for: protein sufficient to replace nitrogenous waste and build new tissue: minerals that are essential, the vitamins, and water. It has been found practicable to place the patient on a diet containing 75 grams of carbohydrate the first day, to reduce this to 50 grams on the second day, to 30 grams on the third day. On the fourth day the ultimate prescription is given.

After the education period, during which the patient or a member of his family learns to weigh and select the articles of his diet the adult patient goes home to continue his diet for six months. He learns to test his urine for acetone and diacetic acid as does the diabetic to test his urine for sugar. He is instructed to keep a diary of the attacks if any occur. If benefit has been obtained at the end of six months the patient continues the diet in a slightly modified form. If under this graded modification improvement ceases the more rigid diet is resumed. The patient's threshold of tolerance for a more normal diet has been crossed. A limited experience indicates that two years is the shortest period in which one may expect the patient to be able to live in a state of health on a normal diet.

KETOGENIC DIETS IN EPILEPSY — LOUISE WILKINSON, DIETITION, MORNINGSIDE HOSPITAL, TULSA

The prescription for the diet, when first begun, is as follows:

Fifteen to 20 grams of carbohydrate; 1 gram of protein per kilogram of body weight and the remaining caloric requirement in fat. For a man whose weight is 160 pounds the prescription would be 20 grams of carbohydrate, 72 grams of protein, 208 grams of fat, making a total of 2246 calories.

The big problem of the diet is to make it palatable and attractive, and still take care of the high fat content. The fats are furnished mainly from cream, butter, salad oils and fat meat. Most patients revolt at

taking a too obvious quantity of these, consequently some of the fats must be disguised if possible.

The low carbohydrate allowance results in a lack of bulk, which presents two problems. The patient may feel the pangs of hunger, although getting enough calories; constipation may develop if proper exercise is not taken, unless he resorts to medication. Such additions to the diet as bran muffins, containing very little nutrition, are helpful. The vegetables of the 3 per cent group are used entirely, in order to get in as much bulk and variety as possible. Fruits are used in each day's menu.

The patient's likes and dislikes are catered to in so far as it is practical, so that he will take all the food allowed on each tray.

Much is made of holiday menus and decorations to keep the patient's interest in the diet. At all times an attempt is made to make the tray appear like normal meals.

The menu below is typical of the food allowance for one day:

BREAKFAST

Grapefruit	70 grams
2 eggs	100 grams
Cream (whipping)	50 cc.
Bacon	75 grams
Butter	10 grams
Bran muffins	1

DINNER

Chicken	150 grams
Spinach	75 grams
Celery heart	35 grams
Bran muffins	1
Butter	12 ounces
Custard:	
Pumpkin	35 grams
Cream (whipping)	50 cc.
2 eggs	100 grams

SUPPER

Salad:	
Apple	40 grams
Grapefruit	35 grams
Pecans	10 grams
Mayonnaise	20 grams
American cheese	24 grams
Lettuce leaf	
Sliced tomatoes	50 grams
Bran muffins	1
Butter	15 grams
D-Zerta	2
Cream	50 cc.

THE ROLE OF THE PATHOLOGIST IN MALARIAL INFECTION*

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"Oh, beware of Dame Anopheles,
For hereon hangs a tale;
While hubby thrives on plant juice,
'Tis for gore she hits the trail:
So when you hear her singing,
Don't forget friend Kipling's wail,
That the female of the species
Is more deadly than the male!"

That the control of malarial infection presents a very real and pressing problem in Tulsa and vicinity will be readily admitted by anyone at all familiar with conditions in this section during last summer and fall. Coming to Tulsa about seven years ago, we found that in the routine examination of blood smears the plasmodium of malaria was a comparatively rara avis, but, after months of observation the belief has been forced upon us that we are witnessing a steadily mounting seasonal rate of infection, for which there should be very little excuse.

It is claimed by competent authority that with any sort of cooperation between the people of a district and their medical advisers, eked out by a small contribution from the county health department, malaria should take its place with the dodo and the dinosaur in the limbo of extinct and unmourned monstrosities. Modern medicine, brushing aside the blind faith in the igniis fatuus of the dank, noxious clouds of miasma arising from the swamps at nightfall, focuses its attention upon the much more real and substantial clouds of anopheles mosquitoes, arising from the same location, with blood in their eyes and the milk of human kindness clabbered in their breasts. The up-to-date epidemiologist approaches this problem from the preventative side, if he can; from the capsulological and hypodermicological side, if he must; and from both in many, many cases.

What is the pathologist's interest in this most distressing physical and economical handicap on the suffering public? To answer intelligently, one must first inquire. "What do you mean by a pathologist?" A short and inclusive answer would be "one who is learned or skilled in the structural and functional changes caused by disease." Could any technician or the

*Read before the joint meeting of the Tulsa County Medical Society and the staff of the Oklahoma Hospital, Tulsa, Oklahoma, January 14, 1929.

host of conscienceless medical parasites, who prey upon the infirmities of the gullible public, possibly be included in this classification? Empthatically, NO! A pathologist should be a doctor of medicine, of wide acquaintance with both the theory and the practice of his profession; one whose mind is ever open to new truths and whose bark carries only the necessary canvas to take full advantage of every favoring wind, minus the bellying jibs and gaudy pennons streaming from the mastheads, whose sole purpose is to attract the eye of the beholder, without adding anything to the efficiency of the craft.

Now, lest someone say unto himself, "Heaven defend us, we are about to be subjected to a rehash of the trite and oft-repeated admonitions about screening of human habitations, using mosquito nets, draining or oiling of stagnant pools, thorough cinchonization of the populace, etc., etc., ad nauseam. Nay, brother, not so! All these measures are important but are too well known by any informed physician, in particular, those of you educated in our beloved Southland, for me to dwell on them.

"Then, why discuss the subject at all?" hazards Dr. Selfsufficiency. "We know all about malaria and its proper preventative and therapeutic management!" Oh, do you? How very interesting! Perhaps then you can give us the long sought answer to a few of the following questions, about which even the eminent sanitarians and epidemiologists of the national malaria commission are still uncertain.

1. Do all species of anopheles mosquitoes transmit malaria?
2. Is there any therapeutic agent equal to or better than quinine for the treatment of this disease?
3. Where are the parasites located in the body at various stages of the infection?
4. Is the parasite inside or outside the red cell?
5. Do non-infected m o s q u i t o e s live longer than infected ones?
6. How many oocysts are necessary to produce the infective mosquito?
7. Is relapse in malaria due to changes in the blood plasma, which make it easier for the merozoites to parasitize cells or to changes in the inhibiting power of the leucocytes?
8. What is responsible for latency, i.e., the period between inoculation and symptoms?
9. Is immunity to the disease acquired?
10. What is responsible for the extreme pathogenicity of falciparum?
11. What are the effects of quinine on the parasites themselves?
12. Is a complement fixation test practical in malaria carriers?

This will probably be enough. Now, folks, take your time; don't all speak at once! Remember that Drs. Ferrell, Darling, Bass, Welch, Fricks, Griffits and Barber and King, LePrince and Hegner will be sitting with bated breath and hanging on your every pronouncement with consuming interest, for these gentlemen are in the thick of the fight against the plasmodium. Yes, we know about as much about malaria as we do about the various other ills that flesh is heir to, and yet this is one of the few maladies with a so-called specific remedy. How we blind grubs do love to throw out our chests and delude ourselves and others about our vast store of knowledge, when we should be prostrate in the dust, awed into silence by the infinity of the unknown and the unknowable!

But, with all due humility, let us raise the paean of praise for the tireless endeavors of the many faithful workers, whose names will never adorn the Hall of Fame, and yet whose contribution to our knowledge of malaria and its proper methods of control and eradication is responsible for the fifty per cent reduction in the infection rate in the delta region of the Mississippi. Specialization has made such rapid strides that we are now able to discern upon the heights, the malariologist, that *ne plus ultra*, of whose very existence, in truth, I was wholly unaware until I began the collecting of data for this short paper.

The various states in which malarial infection is a major public health problem are cooperating with the county authorities and government experts, utilizing both men and money in a real clean-up campaign and the measure of their accomplishment can be taken in the greatly improved morbidity and mortality figures on this disease. "Yellow Jack" has struck his colors and fled, and his ally and fellow-murderer Blackwater Fever has the halyards in his hands all ready to follow suit when the proper pressure is applied. Do not be deceived, however, for the menacing plasmodium will not, out of the innate generosity of its nature, voluntarily retire from its gory feast! Ah, no! It will be wiped out only through the unremitting cooperation of the local physicians, the

health officers and the *hoi polloi,* all of whom must use the contents of the old skull to the utmost of their ability.

One writer mourns that no epic has yet been written styled "The Vanishing Vivax" or "The Passing of the Plasmodium Falciparum" despite the fact that "these events, though less spectacular, are historically as interesting and economically of far greater importance to America than the fate of the Indian and the shaggy buffalo of the western plains."

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ABSCESSES IN THE REGION OF THE RECTUM

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Abscesses in the region of the rectum are common, and a short paper on this subject seemed to me to be not amiss. A rectal abscess not promptly and properly treated will result in much suffering and disability to the patient and discredit for the physician. The rectum to the average physician and even to the general surgeon is an unknown field; they regard conditions affecting this region as trivial, when as a matter of fact perhaps as much suffering and disability are caused by diseases of the rectum as any part of the body.

CLASSIFICATION

Abscesses of the rectum may be classified according to anatomical location as ischio-rectal, subcutaneous, submucous, perirectal and tubercular. In addition to these classes, abscesses originating in other regions may track downward and involve the rectum, notably psoas abscesses and abscess of the urethra.

ETIOLOGY

Very slight abrasions of the mucous membrane of the rectum and peri-anal skin, injuries from fish and chicken bones which have been swallowed, tears due to hard fecal masses, the use of hard rubber rectal tubes, infected and gangrenous piles all may cause these conditions. Occasionally infection may be secondary to infection in other parts of the body, as in the caseof tuberculosis; or in rare instances it may follow operative procedure in this region. The infecting organisms are, in most instances, the common pus producers, the staphylococcus albus and aureus. In perirectal abscesses the streptococci will ordinarily predominate. The coli is ordinarily present but it is not often the primary infecting agent; the coli, however, is occasionally found in pure culture. In tubercular abscesses the tubercle bacillus may occasionally be found.

ISCHIO-RECTAL ABSCESSES

Ischio-rectal abscesses are those involving the ischio-rectal fossae on either side of the rectum. These spaces are filled with loose areolar tissue and are connected by a narrow isthmus behind the rectum filled with the same type of tissue. They are ordinarily single, but quite frequently an abscess originating on one side will burrow along this track and infect the other side. Above the levator ani, which practically surrounds the rectum behind, there is another space of the same type. Deep abscesses in this location are not easily recognized and are dangerous as they may track upward and invade the iliac fossa. Ischio-rectal abscesses may become quite large before being recognized; the amount of foul smelling pus evacuated will often be out of all proportion to the apparent size of the abscess.

The symptoms are at first discomfort or pain around the rectum upon motion or upon standing or sitting; later, the pain becomes dull and throbbing, and there is great tenderness over the affected area with a sensation of heat and fullness in the rectum. There are frequently chilly sensations, or there may be an actual chill; the temperature is elevated, sometimes as much as three or four degrees; the pulse is rapid. When the abscess points toward the skin, this will ordinarily be on the inner side of the buttock close to the anus and the skin over the affected area will be tense and there may be a bluish or red discoloration.

TREATMENT

Early and free incision is the only treatment worthy of mention. Don't wait for evidence of pus for the abscess to point, nor do not poultice or use hot baths before incision in an effort to promote the comfort of the patient. Even if no pus is found on incision, you will promote drainage and limit the size of the abscess. They may be opened by a crucial incision extending out on the skin well beyond the limits of the abscess cavity, or by an elliptical incision large enough practically to permit you to lift off the top of the abscess, thus converting it into an open wound. Whatever method is used, the skin should be trimmed back from the edges of the wound for one-

half to three-fourths of an inch. If a fistula has formed, do not attempt to operate it at this time; wait until the abscess has almost healed, and then operate, and you will be able to get away with much less destruction of tissue. The after treatment is simple; no drain is used nor are they syringed out; simply dress them with a large flat dressing frequently changed. This dressing is held in place by adhesive strips across the buttocks. A hot bath two or three times a day keeps the wound clean, adds to the comfort of the patient and promotes rapid granulation. Scarlet red ointment may be used if the granulations become indolent. Care should be taken to see that the wound heals properly, from the bottom, that it does not bridge leaving a fistulous track and that the skin does not close in until the wound has granulated up flush with it.

SUBCUTANEOUS ABSCESSES

These are ordinarily small abscesses occurring close to the margin of the anus, just beneath the skin, the inside of the external sphincter. They are painful out of all proportion to their size, and do not involve the ischio-rectal space, this last distinguishing them from abscesses of that type. Tubercular abscess is frequently subcutaneous, but is not ordinarily painful. The symptoms are not marked. If a finger is inserted in the rectum the induration can readily be mapped out. Tubercular abscess is not indurated, or very slightly so; they are not as painful as the more acute type, and their pus is thin and watery, entirely different from the other type.

TREATMENT

If the abscess is small enough it may be enucleated; if not, incise freely and permit it to heal by granulation.

SUBMUCOUS ABSCESSES

Submucous abscesses are those occurring beneath the mucous coat of the rectum and between it and the muscular coat. They are generally chronic and may exist undetected for a long period of time. Their ordinary situation is just within the anal margin where they can be felt as a soft elastic swelling more or less movable on the muscular coat. Instead of a single abscess there may be one or more fistulous tracks running up under the mucous membrane, well into the rectum.

TREATMENT

The infected areas should be well exposed with rectractors and the tracks opened with a knife and the edges well trimmed away with scissors. Bleeding will likely be quite free but may be controlled by the usual methods and a loose pack around a drainage tube. If a pack is used, after it is removed the rectum may be syringed out once or twice daily with a weak antiseptic solution. Submucous abscesses above the levator ani should not be opened from inside the rectum. Go in from the outside with a finger in the rectum; cut down on this, cutting the fibres of the levator ani transversely in order to secure good drainage, and put in two or three drainage tubes; shorten these tubes often. This type of abscess is obstinate and inclined to heal very slowly.

PERIRECTAL ABSCESSES

Perirectal abscess is a rare type of abscess due in most cases to infection with the streptococcus, and often accompanied with severe sloughing and gangrene. It may follow a perimetritis due to torn cervix or stricture of rectum, may be the result of a psoas abscess tracking down alongside the rectum, may be due to tuberculosis, to necrosis of the pelvic bones, to abscess in the neighborhood of bladder or urethra or of prostate, or occasionally to an appendiceal abscess. The injection of strong solutions of nitrate of silver in an effort to cure fistula has caused it. The symptoms are pain and discomfort on going to stool, pain in the back over sacrum or in front over bladder. There is a profound toxaemia with high temperature and chills, and there may be a suppression of urine.

TREATMENT

The only treatment for these cases is free incision through the ischio-rectal fossa. If the abscess cannot be found or cannot be opened freely, open up the levator ani on one or both sides and search for the abscess with the finger or by blunt dissection with forceps. Cut the levator transversely and when the pus is found and evacuated put in a large sized drainage tube. Large hot packs may be used or, if the patient is strong enough, frequent hot baths. The bowels should be kept freely open and supportive treatment instituted. This is the most dangerous type of rectal abscess, and if it is not very promptly and freely drained you stand an excellent chance of losing your patient.

In conclusion let me say that no originality is claimed for this paper; the authorities on the subject have been freely consulted, and some of their ideas are incorporated.

EXTRAVASATION OF URINE

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Extravasation of urine as a term is considered a misnomer by some, but is used by most authorities to denote an infiltration with urine of the tissues immediately surrounding the urethra. Saloway[1], in a most able article, recently reported that of eighty-three cases in Bellvue Hospital from 1917 to 1925, sixty-nine were due to stricture of the urethra, nine to infection, three to ruptured urethra and two in infancy. Thus over eighty per cent were due to stricture and these were always accompanied by peri-urethral abscess. The generally accepted theory of the cause of extravasation is that of mechanical obstruction by a stricture with consequent damming back of urine and pressure against a thin walled urethra, causing rupture. This is most frequently associated with the presence of infection in the glands of Littre and Cowper. The physical state of the urine has an important bearing on the course and prognosis of these cases. Normal sterile urine is nearly innocuous when injected into the tissues, while septic urine is very destructive and rapidly produces inflammation, gangrene and sloughing. The point at which rupture occurs is very important in determining the direction in which extravasation takes place, as that is limited by fascial planes. Wesson[2] has shown admirably the location and extent of the pelvic fascia so that if the rupture is in the bulbous urethra (the most common type) the extravasated urine will extend forward, first to the scrotum and then upward along the spermatic cords involving the penis and later the abdominal wall. It is prevented from extending on to the thighs by the attachment of the superficial fascia to Pouparts ligament. If the rupture is in the pendulous urethra the extravasation is confined to the penis by the dartos and superficial fascia. Rupture in the membranous and prostatic urethra have their definite routes of extension limited mainly by the triangular ligament.

SYMPTOMS

The symptoms vary depending on the duration, extension and virulence of the infection. Pain in the perineum is almost constant. The earliest sign in the most common type is induration of the bulb of the penis which feels very much like the bulb does when in erection. Frequently there is pain with difficulty on urination, chills and fever of a septic type. The constitutional symptoms may vary from mild to fulminating, the latter showing a patient irrational with high fever, a rapid thready pulse and an appearance of collapse.

DIAGNOSIS

This is usually not difficult as when first seen the patient has swelling and inflammation in the perineum, scrotum and penis. It is in the early case with great prostration that the diagnosis may be difficult but the typical induration in the bulb of the penis is diagnostic. This is before the process ruptures through the bulb and infiltrates the surrounding tissues.

PROGNOSIS

There is an exceedingly grave prognosis depending on the duration of the extravasation, its extent and virulence and the resisting powers of the patient. The immediate mortality is about forty per cent and in the severe cases that recover large areas of skin become gangrenous and slough off exposing the testicles, penis and abdominal wall, so that plastic operations are usually necessary.

TREATMENT

Meeker[3] in reporting seventy cases says the treatment should be prompt and radical and in this he is only amplifying the experience of others. As the process begins in the perineum, that should be freely opened first and wherever the skin is edematous free incisions must be made and left open. Drainage tubes should be used freely. I do not believe the stricture should be attacked at this time unless there is retention, for the patient is already in a serious condition and to do only what is necessary is indicated. The stricture can always be dilated at your leisure.

CASE REPORTS

Case 1. H. T., colored, age forty, was brought to the hospital in a delirious condition July 3, 1927. No history was obtainable except that five days before he was unable to urinate and attempts had been made to pass sounds without success. He appeared extremely ill, his bladder was distended to the umbilicus, the scrotum, penis and abdominal wall were infiltrated and there was a gangrenous odor present. A suprapubic cystotomy was done at once and free incisions made where necessary. The glans penis was found to have slough-

ed off. He never recovered consciousness and died thirty-six hours later.

Case 2. W. M., white, age thirty-eight. One week before admission to the hospital in May, 1928, he had acute retention and was relieved by a metal catheter, there being great pain at the time and considerable bleeding. Since then he has been in great agony with chills, fever, difficult and painful urination. On examination he appeared extremely ill and the perineum, penis, scrotum and groins were swollen and inflamed. Free incisions were made wherever necessary. The next day the process was found to have extended up the abdominal wall so fresh incisions were made. He then improved markedly for ten days, with sloughing of the skin of the penis and abdominal wall. Acute retention then developed. There was always a purulent urethral discharge present, so following catheterization he developed fever and chills and died in three days of sepsis. Possibly if a cystotomy had been done instead of catheterization he might have recovered.

Case 3. G. S., age fifty-nine. He had been having difficulty on urination from a stricture for about ten years. For the past month he has been able to urinate only in dribbles with great pain. When seen in September, 1928, a filiform was passed into his bladder without much difficulty followed by a No. 14 F. Lefort sound. He urinated freely after this. Two days later he developed a septic temperature and a typical induration in the bulb of the penis. The next day his symptoms were worse and the induration greater. An incision was made therefore in the perineum and some pus removed. Drainage tubes were inserted. Improvement was prompt and in three days the tubes came out with considerable gangrenous tissue. Recovery was uneventful.

Case 4. G. H., white, age thirty-four. He had had a stricture for eight years, during which time he had had four attacks of acute retention which had been relieved by catheterization. When seen October 20, 1928, he had not urinated for twelve hours and several attempts to pass sounds had been made previously without success. He was in great pain and there was blood at the meatus, indicating urethral trauma. After some difficulty a filiform followed by a Phillip's catheter was passed into the bladder and the urine withdrawn. He threafter urinated freely and on the third day complained of listlessness. There was present a typical induration in the bulb of the penis. He was told to report back the next day but was found that morning unconscious with high fever and a rapid thready pulse, having been overwhelmed suddenly by the toxemia. An incision was made at once and drainage tubes placed in the deepest parts. He was very ill for four days and then the tubes came out with a large slough of gangrenous tissue, after which recovery was uneventful.

Case 5. E. B., colored, age thirty-nine. He had been operated on for stricture ten years before but always has had trouble urinating since. He was first seen on December 10, 1928. Two weeks previously while hunting he fell straddling a fence rail and shortly afterwards noticed a lump in his perineum. This has gradually grown larger and for a week he has been in bed. He urinated, but with difficulty and did not look ill. There was an indurated area in the perineum extending upward behind the scrotum which was quite edematous. An incision was made in the perineum at once and a large amount of foul pus removed. Drainage tubes were placed in the deepest parts. There was a profuse purulent discharge for a week with large sloughs of gangrenous tissue. The edema of the scrotum disappeared spontaneously. Recovery was complete.

Case 6. P. S. T., colored, age thirty-eight. This case is almost identical with the previous one, except that no direct cause of the extravasation could be found. The process had extended from the bulb to the surrounding perineal tissues. Thorough drainage resulted in prompt recovery. He was first seen January 4, 1929.

Six cases of extravasation of urine have been presented, two in the first stage involving the penile bulb only, two in the second stage in which the surrounding perineal tissues were involved and two in the third stage in which the scrotum, penis and abdominal wall were involved. The first four recovered, the last two died, a mortality rate of thirty-three per cent. The earliest case (twenty-four hours) showed a virulent toxemia and the latest one (two weeks) showed hardly any systemic effects at all. Four were caused by instrumental trauma, one by external violence and in one the cause was unknown. All six had urethral strictures.

CONCLUSIONS

1. Extravasation of urine is a very ser-

ious condition requiring immediate operation.

2. The perineum should always be drained first as it is the original site of the rupture.
3. Extravasation is nearly always associated with a stricture of the urethra.
4. The earliest sign of extravasation is a typical induration of the bulb of the penis which feels very much like the bulb does when in a state of erection.
5. A case of acute retention or a tight stricture should never be instrumented except by a filiform followed by a Phillip's silk catheter or leader bougie which conforms to the shape of the stricture, while the Lefort steel follower makes the stricture conform to its curve and thus may cause rupture of the urethra.

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MESENTERIC CYSTS

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The purpose of this paper is to review available literature, stimulate interest in this comparatively rare condition and report a case of mesenteric cyst.

The more common things of our profession are most uppermost in our minds when a given case is presented but the less common are not so present and sometimes lead us into error.

It seems by reviewing the literature that this is the situation regarding mesenteric cysts, they having been heretofore seldom diagnosed preoperatively.

HISTORY

The first known case of mesenteric cyst recorded in literature was by a Florentine anatomist, Benenvieni 1570. He described it as an anatomical curiosity. Since that time about three hundred cases have been discovered. In modern times Rokitanski, 1842, first diagnosed mesenteric cysts from necropsies, none having been diagnosed antemortem. From 1850-1880 they were occasionally operated wtih fatal results. Even in 1883 Collett writes exhaustively that up to that time laparotomy for mesenteric cysts had never been successfully performed following a correct diagnosis. About this time Pean (Fr.) did a Marsupialization operation and proved it to be successfully operable.

Niosi in Virchow's archives reports 184 mesenteric cysts. In 1886 Augagneur collected statistics showing that 18 out of 90 cases or 5 per cent of mesenteric tumors were cystic. His work with the monographs of Broque in 1892 and later works by Moynihan and Dowd, and Pfaff in 1905, along with such French surgeons as Pean, Millard and Tillaux, gave a new impetus to study of mesenteric cysts..

FREQUENCY

Mesenteric cysts are probablly more uncommon than similar lesions of any of the structures of the abdomical cavity. The difficulties of early diagnosis, the high mortality rate, behooves us to give more attention to this particular disease.

Up to 1923 only 200 cases had been recorded. In the California Hospital 2 cases had been found in 1574 laparotomies. The Massachusetts General Hospital in a recent communication reports from 1900-1926 only six cases of mesenteric cysts operated with no follow up history and no deaths. One case was reported inoperable. The percentage of cases in this hospital must be very small compared with the larger number of major cases reported in the 26 years.

In the last five years less than a hundred have been added to the slowly growing number of cases reported.

Data is sometimes difficult to get from our large clinics; which may help to lessen the number of cases written in the literature.

ETIOLOGY

The genesis of mesenteric cysts is some what obscure, but they must be of embryonic nature, owing to the frequency in the young, but are sometimes found in adult life.

Many clues as to the origin have appeared in literature, but those of Dowd (appearing in Annals of Surgery, Vol. xxxll, page 515) written in 1900 giving them an origin from the Wolfian body, has gained great favor, they being occlusion remnants in the developing peritoneal folds.

He showed how these cellular relics undergo cystic degeneration and give rise to the cysts at the most common locations, e.g. that of the ileocecal valve, the appendix and the terminal illeum, although they

have been demonstrated along the entire colon.

There is good evidence also that they may be of intestinal origin, from diverticuli. Dowd acknowledges this classification as a probable origin.

Strode and Fennel, writing in the S. G. O. report a case in an infant that showed all the coats of the intestine, and probably originated from misplaced entoderm epithelial cells in the walls of the gut.

Microscopic examination of the walls of the cysts throw very little light many times on the etiology, owing to the extreme thinning before the specimen is procured.

The broader classification of mesenteric cysts by Cortez, Usher and Moynihan must be included in an article of this kind, and are as follows:

1. True mesenteric cysts.
   a. Embryo-cystomata.
   b. Enterocystomata.
   c. Obstructive.
2. Dermoids.
3. Cystic malignant diseases.
4. Parasitic.

MOYNIHAN

1. Serous cysts.
   a. Originating from lymph channels or hemorrhage, between layers of the mesentery.
2. Chylous cysts.
   a. Obstruction to lacteals with milky fluid content.
3. Hydatid cysts.
4. Blood cysts.
5. Dermoid cysts.
6. Cystic malignant diseases.

Many other classifications have appeared that seem to be worthy. The obscurity is probably due to the condition of the cyst found at operation or autopsy.

From the classifications it may be assumed that Dowds probably applies most logically as follows:

a. Embryonic cysts.
b. Hydatid cysts.
c. Cystic malignant diseases.
d. Cysts arising from glandular structure or intestinal wall.
e. Cysts of the normally placed intestinal glands.

The above was modified by Niosi in 1907.

LOCATION

The location of mesenteric cysts are in a great per cent of cases in close vicinity to the illeum, illeo-caecal valve and jejunum.

Only 10 per cent, about 30 cases in literature have occurred in the mesentery of the colon. Doctors Humison and Prette of Chicago, report a case in the ascending meso colon.

Mesenteric cysts vary in size from that of a split pea to filing the entire abdomen, they are usually oval or round, nodular, unilocular or mutilocular and contain clear, serous fluid with floculi, cholestrin crystals, blood or milky fluid as in the chylous variety.

DESCRIPTION

The walls are usually thin (1 cm.) fibrous, very movable and covered with loops of intestine. The inside is usually smooth and shiny. Their growth is usually rapid hence the greater per cent found in the young, although some are quiescent, going on to adult life, or only found at autopsy; death having occurred from other causes. Occasionally ruptures occur resulting in peritonitis.

SYMPTOMS

The symptoms of mesenteric cysts are vague and indefinite and do not present a clear cut clinical picture.

Pain is a very frequent symptom, if pressure is a factor, coming in attacks at varying intervals of time, months to years, occasionally associated with vomiting, especially if there is encroachment on the lumen of the gut nerves or blood vessels leading to it. There would be, of course, concomitant increased peristalsis in an attempt to overcome the partial obstruction or partial volvulus that often occurs from the weight of the cyst.

Shands states that if there are any clear cut symptoms they are the presence of a tumor in the abdomen, centrally located and having an unusual degree of motility with possibly more freedom laterally.

It must be borne in mind that these cysts are very frequently crossed by gas filled intestines, and give a tympanitic note. In close proximity will likely be an area of dullness.

Small cysts may give no suggestive symptoms and naturally would be confused with appendicitis, volvulus, intussuscep-

tion, cholecystitis ectopic pregnancy, or ruptured peptic ulcer.

DIAGNOSIS

The diagnosis of mesenteric cysts so far has, in a very few cases, if ever, been correctly made preoperatively.

In the future the probability is that mesenteric cysts will be more often borne in mind because of the recent number reported in literature.

The following symptoms, if borne in mind, would aid in considering a diagnosis of mesenteric cyst.

1. Movable tumor, that, is only slightly painful.
2. Normal or low blood count in the absence of obstruction symptoms and inflammation.
3. Vomiting.
4. Tympanitic areas in close proximity to dull areas.
5. History of abdominal trauma previous to finding abdominal tumors.
6. Pain of mild or severe obstructive character increasing in attacks at varying intervals in absence of acute inflammation.
7. Diarrhea alternating with constipation accompanying the above symptoms.
8. X-Ray examination showing narrowing of lumen of gut that is in relation to the tumor mass.

PROGNOSIS

If operative symptoms appear early and the cyst is removed the mortality is not high, but unfortunately in a great percentage of cases operation is done late, after obstruction symptoms have developed and dehydrated the patient or further advanced than that even, necrosis and gangrene having occurred.

Vance states that the operative mortality is 41 per cent of the 27 cases collected by him.

Wilensky stated that when resection must be done, of course the mortality percentages are increased and should be done only when a more conservative operation is impossible.

Other authors give a mortality of about 35 per cent.

COMPLICATIONS

1. Intestinal obstruction in about 50 per cent.
2. Adhesions.
3. Intussusception from hyperperistalsis.
4. Hemorrhage into the cyst.
5. Peritonitis as a sequellae.
6. Torsion of cyst and volvulus.
7. Impaction in pelvis.
8. Dilatation of stomach.
9. Intestinal paresis.

TREATMENT

Of course, in any acute abdominal condition the treatment is surgical.

The treatment can be classified concisely under five headings:

1. Aspiration.
2. Marsupialization.
3. Incision and drainage.
4. Enucleation.
5. Resection if the circulation in the bowel has been damaged sufficiently.

Usually enucleation or resection is the operation of choice if seen comparatively early.

Aspiration and marsupialization are obsolete, except in very severe cases, the former giving 50 per cent recurrences, while the latter possibly more cures.

Incision and drainage is done only when operated late or when the cyst is of enormous size, and when enucleation or resection are not the conservative thing.

CASE REPORTS

J. R. D., male, age 5, white, was referred to me by Dr. P. H. Mayginnis on July 11, 1927, at 5 P. M., and brought to Morningside Hospital. The past history was negative as far as major diseases were concerned. No history of injury could be procured from the mother. Parents living and well.

The boy was well up to six days previous to admission to the hospital, when in the afternoon he began to vomit from no apparent cause. The vomiting continued, consisting of varying quantities without retained intake whatsoever until admission to the hospital.

On Thursday, the second day after onset the mother stated that the baby's bowels moved, but no more. The physician was called, a few hours previous to admission, who made a diagnosis of intestinal obstruction.

Examination showed a considerably emaciated, dehydrated boy, vomiting at in-

tervals. The head, neck and chest showed no gross pathology. The abdomen was only moderately distended, soft and not tender except just to the right of the umbilicus. The skin gave a doughy feeling but this was attributed to dehydration. No definite mass could be found by palpation or percussion.

Rectal examination showed some very slight resistance on about a level with the prominence of the sacrum but not suggestive enough to diagnose tumor. The temperature on admission was 99.4, pulse 120.

Blood picture W.B.C. 36,600, 94 per cent polys, S.L. 4 per cent, large L. 2 per cent. Haemoglobin not reported, nor R.B.C., urine negative.

This high count was probably due to dehydration.

Since high enemas only got a small amount of gas, and the vomiting continued it was deemed advisable to open the abdomen.

The abdomen was opened at 10:30 the next morning after admission with a midline incision from the umbilicus to the symphisis; there was only a small amount of hemorrhage due to dehydration.

Upon opening the abdomen about two ounces of slightly milky pus-like fluid flowed out. Since no inflamed areas could be found it was considered of lymphogenous origin due to the obstruction of the lacteals.

Just above and slightly to the right of the promintory of the sacrum were found two orange sized, unilocular cysts, about 10 inches from the terminal illeum. These cysts were connected by a patulous stem making them very freely communicable. Pressure made on one would increase the size of the other proportionately.

This stem passed through the mesentery of the illeum at right angles. The two globular masses were adhered to the illeum laterally, leaving a strip of peritoneum on its antimesentric borders about three-fourth inches wide.

One cyst was punctured and found to contain a clear straw-colored fluid with numerous cholesterin appearing crystals. It was dissected from the illeum, followed by a like procedure of the other and the stem removed from the mesentery.

Resection was not deemed necessary or advisable; first, because of the circulation of the gut being only slightly impaired and second because the general condition of the patient was not good.

One denuded surface was peritonealized so as not to encroach on the lumen of the gut and the other was covered by a piece of omentum.

The abdomen was closed in layers after placing a soft rubber tube drain in the site of operation.

The distended bowel above the cystic mass then distributed its contents into the collapsed bowel below. The obstruction had been only partial and some gas had been getting by when hyperperistalsis would take place.

The cysts had undoubtedly arisen from the mesentery and were of the serous type.

The patient went back to bed in fair condition.

The bowels moved the next 24 hours with the aid of enemas. Feces and a considerable amount of gas were passed. This continued daily. Vomiting continued consisting of a bile stained stomach content. Percussion showed a dilated stomach which was washed out by soda solution occasionally. These complications continued and the patient died on the eighth day after admission.

Pathological report of the Terrill's laboratory, shows the wall of the cyst to be composed of loosely woven connective tissue fibers with an occasional accumulation of small round cells.

Autopsy was done by Dr. P. H. Mayginnis and the report is as follows:

Through a mid-line incision the abdomen was completely opened; the site of operation was healed, the omentum was fastened. The gut was normal color on either side of the site of operation. Fluid and gas could be expressed through the lumen at the site of operation. The only other pathology found was an immensely dilated stomach, all other organs apparently normal.

Cause of death: acute dilitation of the stomach and dehydration.

CONCLUSIONS:

1. Mesenteric cysts are comparatively rare.
2. All cases that are found should be reported so a more concise clinical picture could be formulated.

3. Cases should be reported regardless of outcome so mortality per cent could be ascertained.
4. Mesenteric cysts should be borne in mind when abdominal conditions present themselves for differential diagnosis.

SURGICAL REPAIR OF THE ILEOCECAL VALVE

J. E. WALLACE, M.D.
TULSA

The ileocecal valve is not a new discovery. It was first described by Vidius in 1557. Bauhinus, of the famous medical school of Padua, after whom the valve has been named, published a description of the valve of which he supposed himself to be the first discoverer in 1579. Debierre studied the action of the valve by the ingenious method of a glass window in the cecum in 1885. Max Hert, of Vienna, made an extensive study of the structures of the valve and its functions in 1897.

Cannon, Keith and Elliott in recent years made further studies of the structures and the function of the ileocecal valve which have shown it to be a distinct anatomical entity with a function of high importance not only to the digestive process but to the general welfare of the body. The development of the X-ray method of examining the various parts of the alimentary canal after a bismuth meal, has made possible a more minute and systematic study of the function of the valve in human beings.

First, it is necessary to briefly consider the structure of the normal valve. Cunningham gives the following excellent description of the ileocecal valve as found in human beings:

"Where the ileum enters the large intestine the end of the small gut is, as it were, thrust through the wall of the large bowel, carrying with it certain layers of that wall, which project into the cecum in the form of two folds, lying respectively above and below its orifice, and constituting the two segments of the ileocecal valve. The condition may be compared to a partial inversion or telescoping of the small into the large intestine; it must be added that the peritoneum and the longitudinal muscular fibers of the bowel take no part in this infolding; on the contrary, they are stretched tightly across the crease produced on the exterior by the inversion, and thus serve to preserve the fold and the formation of the valve.

"Each segment of the valve is formed of an infolding of all the coats of the gut, except the peritoneum and the longitudinal muscular fibers, and consequently it consists of the two layers of mucous membrane, with the submucosa and the circular muscular fibers between, all of which are continuous with those of the ileum on

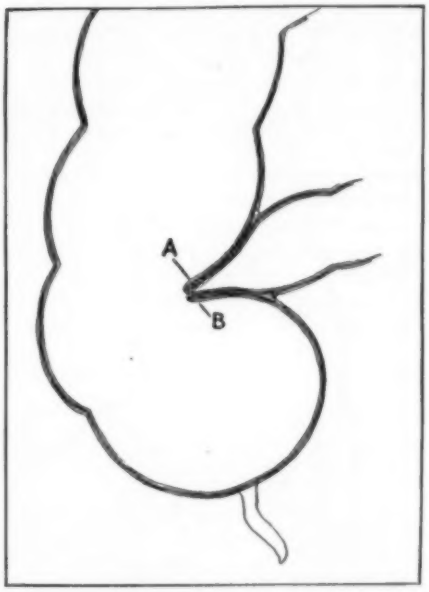


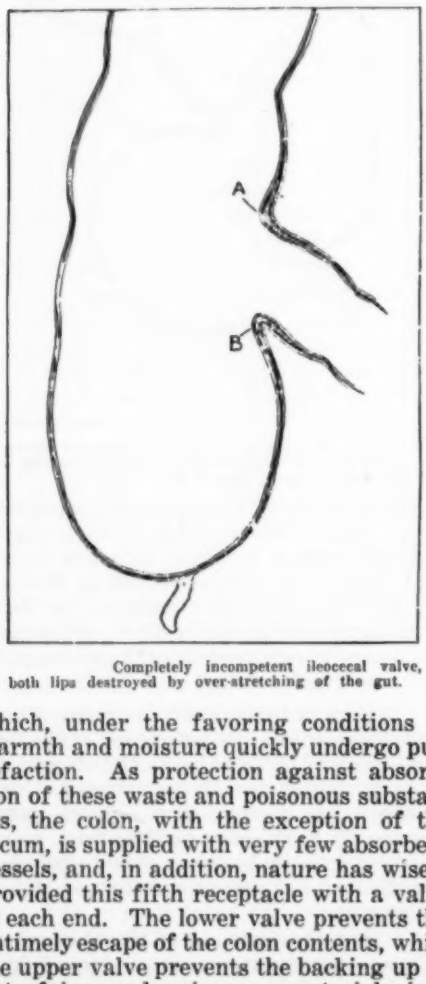
Diagram showing structure of ileocecal valve, intussusception of small intestine forming anterior and posterior lips, A, B.

the one hand and of the large intestine on the other. The surface of each segment turned toward the small intestine is covered with villi, and conforms in the structure of its mucous membrane to that of the ileum; while the mucous membrane of the oposite side resembles the mucous coats of the large bowel.

"There is little doubt, as pointed out by Symington, that the efficiency of the ileocecal valve is largely due to the oblique manner in which the ileum enters or invaginates the cecum; this oblique passage alone, as in the case of the ureter piercing the wall of the bladder, would probably be sufficient to prevent a return of the cecal contents.

"That the function of the ileocecal valve is an important one is evidenced by the presence of this structure in practically all vertebrate animals. The alimentary canal

of every vertebrate is divided into three parts, the fore gut, the mid gut and the end gut. The fore gut receives the food and prepares it for digestion. The mid gut digests the food and absorbs the usuable portion of the ingesta, while the end gut dries out the unusable residues which are thrown into it and then discharges them from the body. The mid gut is the great organ of digestion and absorption. It is the feeding place of the body. Practically no liquids are absorbed from the stomach, while the mid gut, the small intestine, absorbs in the average man not less than five or six quarts of liquid daily. On the other hand, the colon absorbs little. The colon serves as a place for the temporary storage of unusable residues and waste products,



Completely incompetent ileocecal valve, both lips destroyed by over-stretching of the gut.

which, under the favoring conditions of warmth and moisture quickly undergo putrefaction. As protection against absorption of these waste and poisonous substances, the colon, with the exception of the cecum, is supplied with very few absorbent vessels, and, in addition, nature has wisely provided this fifth receptacle with a valve at each end. The lower valve prevents the untimely escape of the colon contents, while the upper valve prevents the backing up of putrefying and poisonous materials into the small intestine, that portion of the bowel in which absorption takes place with the greatest rapidity.

"The ileoceal valve is essential to the forward movement of the intestinal contents. The small intestine and colon act independently of each other. The colon has a double action, as Cannon has shown in animals, and Case in human beings. In the transverse colon there is a point at which peristaltic waves passing in opposite directions are generated. From this point the so-called anti-peristaltic waves travel toward the cecum. The purpose of this reverse action is to detain the fluid matters which come down from the ileum in the cecum and the ascending coln for a sufficient length of time to permit the absorption of a considerable part of the water which they contain. When the ileoceal valve is incompetent, this reverse peristaltic activity not only holds the gas and liquid in the cecum but forces it back into the ileum so that the ileum and the cecum becomes a common cavity. The cecum is prepared to act thus as a reservoir but the ileum is not. When the valve is intact, the ileum pushes its contents through into the cecum, little by little, in the intervals between the anti-peristaltic waves. During the back pressure produced by the reverse peristalsis, the ileocecal valve mechanically closes and protects the ileum against the reflux of fecal matter; thus there is steadily maintained an intermittent movement of material from the small intestine into the colon, whereby the small intestine is normally emptied in eight to ten hours.

"When the valve is incompetent, material is often found in the small intestine twenty-four hours or even longer after ingestion.

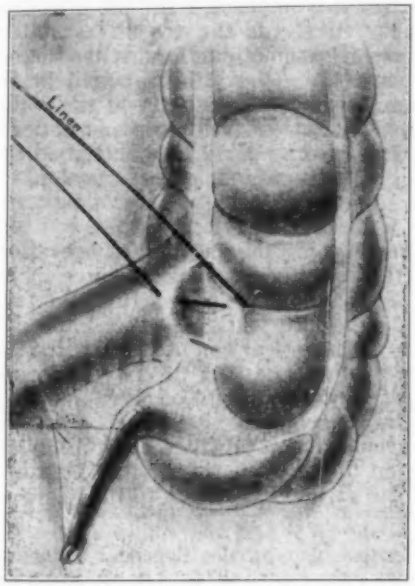
"Case has shown by X-ray that material which, during the activity of the small intestine following the taking of food has been completely carried over into the colon, and twenty-four hours later, may be found to have returned to the ileum, filling several feet of the small gut, thus showing a very definite and often very prolonged ileal stasis.

"The valve may be deformed or destroyed by a tubercular disease or by simple ulceration. I believe, however, that destruction of the lips of the valve by long overstretching of the gut from chronic constipation, is by far the most common cause of incompetency. The position of the valve opening, lying as it does crosswise of the gut, renders it specially liable to damage

by stretching of the colon and cecum in the long axis of the gut.

According to Schmidt and Adami, indol, one of the most constant products of putrefaction in the colon, is not found in the small intestine under normal conditions.

"Ewald, Menche and Jakowski showed that in cases of a fistulous small intestine it was impossible to find even traces of



First step in repair of incompetent ileocecal valve. Suture placed to restore posterior lip.

putrefaction products such as phenol, skatol and indol. From this fact it may be inferred that the ileocecal valve is normally gastight as well as water-tight.

"I am fully persuaded that the mechanical action of the ileocecal valve in preventing a reflux of the putrefying and dangerous fecal materials found in the colon into the small intestine is of sufficient importance to demand surgical interference."

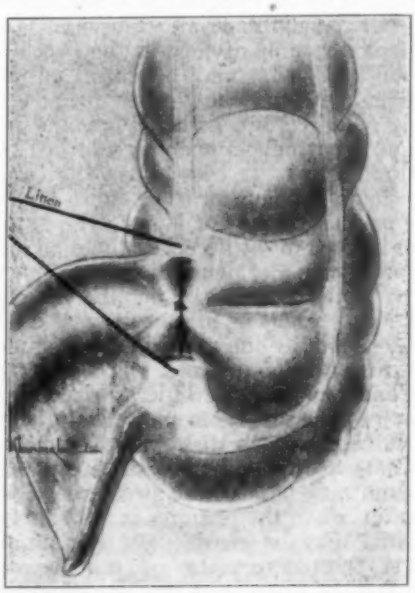
In a series of 138 cases of abdominal section, in which the roentgen examination was made by the aid of bismuth or barium meal had proved marked ileal stasis, the most careful scrutiny of the terminal ileum in each case showed the presence of adhesions of Lane's kink in 39 cases, or in other words ileal stasis was associated with incompetency of the ileoceal valve alone seventeen times as often as it was found associated with adhesions of the terminal ileum or Lane's kink.

A very definite proof that incompetency of the ileoceal valve is the dominant cause of ileal stasis is found in the fact that after repair of the valve, ileal stasis is cured, in cases in which adhesions of the terminal ileum have been found and have been left undisturbed.

SYMPTOMS

Persistent intestinal flatulence. Symptoms of chronic appendicitis with no history of acute, and chronic symptoms persisting after the appendix has been removed. Nausea, faintness and the sense of exhaustion following a large enema. The patient suffers constantly from a very pronounced intestinal toxemia, and usually has learned from experience that little or no relief is afforded by the enema and only temporary relief by laxatives, a long list of which has usually been tried, with the result of making the patient in the end worse than at first because of the intense colitis produced by the long use of intestinal irritants.

The cause of the symptoms is not the kink, is clearly shown by the fact that the kink is far more often absent than present with the above symptoms. The symptoms are, it is true, present when the terminal ileum is adherent, however, not as a con-



Second suture placed to approximate ends of torn habenula.

sequence of the kink, but as a result of the ileocecal valve incompetency to which the kink itself is due.

DIAGNOSIS

Palpation shows in pronounced cases of incompetency a greatly enlarged, gas-dis-

tended and prolapsed cecum, the socalled pelvic cecum. The almost constant presence of indican in the urine. Nausea, faintness and sense of exhaustion following a large enema, and passage of bismuth from the colon into the small intestine in the bismuth enema as shown by X-ray examination.

DIAGNOSIS AFTER OPENING THE ABDOMEN

By rotating the colon outward, it will be seen that a narrow muscular band passes just behind the ilecolic junction. This has been called by German anatomists the habenula. This band is generally so stretched and atenuated as to be scarcely perceptible. When present, as in a perfecly normal colon, it serves to pucker the gut, forming several small haustra, which infold the end of the ileum, and carry into the lumen of the colon the point of junction between the ileum and the corresponding structures of the colon. A division or stretching of this band causes an unfolding of the intestine and more or less complete disappearance of the haustra contiguous to the ileocolic junction and damage to the ileocecal valve, which may be thereby rendered partially or completely incompetent. If the peritoneum and outer muscular layer are stretched or divided at the ileocolic junction, the ileum may be pulled out of the large gut and the valves disappear, leaving a large funnel-shaped opening instead of a buttonhole opening guarded by overlapping lips. In these cases the form of the colon is changed. The curve of the lower portion of the gut is lost. The haustra contiguous to the ilecocolic junction has disappeared, and evidence of incompetency may be easily obtained by making the gas and liquid present in the cecum pass back into the ileum by the application of slight pressure. By compressing the ascending colon and then making light pressure upon the cecum, the ileum, previously emptied, will be instantly distended. The movement of gas or liquid from the colon into the ileum may be accompanied by a slight sound, or when the opening is very large, no sound may be heard. By this simple method the competency of the ileoceal valve may be tested at any time when the abdomen is open. Every abdominal surgeon frequently encounters a very annoying gaseous distention of the small intestine, a condition which frequently adds to the difficulties of the operation, and in no small degree increases the hazard of the operation. Examination of the ileoceal valve in such cases will almost invariably show the characteristic pulled out and conical appearance of the gut at the ileocolic junction with the colon. When the valve is competent the intestine is found practically empty, for when food is introduced into the small intestine, the gut continues active until its contents have been completely emptied into the colon. The time required for the disposition of an ordinary meal is eight to nine hours. When the valve is incompetent it is impossible for the intestine to empty itself for the reason as stated that gases and sometimes liquids are forced back from the colon into the small intestine not only by the elasticity of the walls of the large gut but still more energetically by the reverse peristaltic activity normally present in the right half of colon.

OPERATION

In considering the question of operation upon the incompetent ileoceal valve, it is, first of all, important to recognize the fact that this lesion, while a direct cause of serious pathological conditions, is itself a result of other and long preceding morbid changes, is itself a result of other and long preceding morbid changes which must not be overlooked, and to which attention must be given, if any benefit is to be obtained from the surgical attention to the ileocecal valve.

Incompetency of the ileocecal valve is, in fact, only one link in a long chain of pathological changes of which the beginning is constipation from errors in diet and neglect to evacuate the colon. Accumulation of putrefying fecal matters in the pelvis and descending colon causes distention of the colon and colitis. Colitis produces a spastic state of the gut with obstruction and more distention. Later come pericolitis and adhesions of the prolapsed pelvic colon, with more obstruction and extension of colitis with increased distension of the gut, and especially of the cecum as the result of exaggerated anti-peristalsis. Finally, the stretching of the cecum becomes so great that the structures which support the ileoceal valve give way. The lumen of the ileocolic junction becomes greatly widened and the valve is rendered incompetent.

After incompetency of the valve is established, another series of pathological changes appears, among which are ileal stasis, adhesions of the terminal ileum, the socalled Lane's kink, chronic enteritis, atrophy of the small intestine from degeneration of its glandular and muscular struc-

tures, and a long list of other lesions, due to the ascending infection which naturally results from the presence of virulent fecal matter in the mid gut.

The operation for repair of the valve is exceedingly simple in principle, but requires delicate manipulation and careful technique in execution. If the operation is overdone, most serious injury may result, as an obstruction may be produced by which the patient's life might be imperiled.

The principle of the operation is simply restoration of the valve by invaginating into the colon of a short section of the terminal ileum. The idea is so simple it is difficult to understand why it was not long ago put into practical execution. The probable reason is the lack of appreciation of the importance of the function of this part of the human anatomy.

In many cases the repair of the valve is an exceedingly simple matter, but in not a few cases various difficulties are met. The most notable and the most frequently encountered is the difficulty of exactly locating the ileocolic junction. It must be remembered that the real junction of the ileum and the colon is at the inner border of the valve lips. When the ileum is disinvaginated and the valve incompetent, the line of junction may be clearly distinguished and must be carefully located to make the operation effective. In the normal subject the valve consists of two folds placed in such relation to the large gut that the slit-like opening between the valve runs tranversely. The idea of the operation is to restore these folds by invagination of the gut the operation involves both sides; that is, the upper and lower side of the junction.

With the cecum and a few inches of the ileum drawn out through the incision and properly disposed, it is usually easy to see the junction where the ileum merges into the colon at the anterior face of the gut, close to the upper side of the nonvascular fold of Treves. From this point the junction may be easily traced for two or three centimeters along the upper border of the ileocolic opening; but beyond this point it usually is obscured by a plexus of tortuous veins which are sometimes buried in a considerable mass of fat. The inner half of the upper border of the junction is almost always completely concealed. In cases in which the ileum is well pulled out, the lower half of the junction, beginning at the lower side of the nonvascular fold of Treves, comes fully into view as soon as the non-vascular fold, which usually carries a considerable amount of fat, is lifted and turned upward. Not infrequently, however, the fold of Treves is fixed by adhesions in such a way as to completely conceal the lower half of the junction. Sometimes also the appendix or its mesentery is adherent in such a way as to conceal the junction. It may easily be concealed by bands formed between the cecum or appendix or a fold of the ileum itself when drawn down by adhesions to the valve. Before the repair of the valve can be undertaken, the junction must be brought clearly into view by the careful separation of adhesions.

In nearly every case of incompetency of the ileocecal valve the upper or superior valve will be found deficient while the lower valve is not infrequently found to be intact, as shown by the fact that the ileum is not disinvaginated at this point. For this reason it is best to begin the operation at the inner end of the upper segment of the ileocolic junction.

THE TECHNIQUE OF THE OPERATION

A fine needle should be used, a Lane's cleft palate needle is best for the purpose, and the needle should be inserted through the seromuscular coats of the colon and ileum about half a cm. from the line of junction between the two. The suture is then tied. Next a suture is passed through the separated ends of the ruptured habenula. When this suture is tied the opening will be narrowed and the intussusception of the gut will be restored. The operation may be done with a single linen or silk suture. Firm adhesions of the surfaces thus brought together is secured by abrading the peritoneum or painting it with tincture of iodine.

Another operation I think should be done at the same time (and which I will not take time now to describe), is plication of the cecum.

After practice it is easy to distinguish the colon from the ileum by its lighter color. In cases in which only the superior valve is found to be pulled out, the operation consists of restoring the superior valve only. In many cases, however, it is necessary to restore the inferior valve as well as the superior. The suture must be introduced in such a way as to constrict the ileocolic opening as well as to infold the end of the gut. The suture when inserted sometimes has the form of a square;

sometimes the shape of an inverted V, and sometimes the form of a letter W. One soon learns by experiments the best form of suture to apply to suit the conditions found in an individual case. In cases in which the ileocolic junction is very widely dilated a very considerable degree of constriction is required to make the repair effective. From time to time during the operation the condition of the valve must be tested by an effort to force gas from the colon into the small intestine. It is also important before concluding the operation to test the ease with which the gas may be made to pass from the small intestine into the colon. The constriction must not be so great as to cause any degree of resistance to the passage of gas from the small intestine.

These cases require careful watching after operation and an early movement of the bowles is important.

THE AFTER TREATMENT

The after treatment consists of the *Sinusoidal Electric* current over the bowels, to restore the muscular tone and nerve sensations, together with flaxseeds, mineral oils, agar-agar, cascara, phenothalien, proper diet and exercise.

NITROBENZOL (OIL OF MERBANE) POISONING

W. V. PRUETT, M.D.—E. E. BAUM, M.D.
TULSA

CASE REPORTS

Patient H. G., age 33, laundry employee, complained of common cold and cough.

He procured a bottle of cough syrup from his local drug store, and left it in his work shop during the day.

Some time during his absence from his work shop another employee needed a bottle and poured out cough syrup, replacing it with a cleaning mixture 9 parts phenol and one part "merbane" (nitrobenzol). This mixture was used in removing stains from clothing.

About 4 P. M., December 3, 1928, he was seized with paroxysm of coughing and inadvertently picked up what he thought to be his bottle of cough syrup and swallowed a large mouthful. He stated that he noticd a more marked burning sensation than usual and took a second mouthful. (This bottle was approximately a 3-ounce bottle).

He immediately began to feel severe gastric pains. He went across the street and drank a quart of milk. Returning to the laundry he immediately collapsed, and an ambulance was summoned and the patient removed to Morningside Hospital, where first aid of gastic lavage, alcohol, egg and albumin were administered.

Patient was admitted to hospital, about thirty minutes later the nurse summoned the interne, and informed him that the patient was dying.

At this time the patient was deeply cyanotic, and oxygen inhalations were administred without relieving the cyanosis; 500 cc. normal saline solution was given without any apparent results. Consultation was held and an exsanguine transfusion was decided upon. (Exsanguino transfusion bleeding out of one arm and replacing amount withdrawn into the other arm). A satisfactory donor was found among friends who were present.

Approximately 500 cc. of blood was withdrawn into 5 percent sodium citrate solution and an equal quantity withdrawn from patient.

During the transfusion it was noticed that the patient's blood was a deep wine color, coagulating quickly into a jelly-like mass — coagulating almost immediately when it fell into the cup.

In our opinion this observation was responsible for saving this patient's life, and it was decided to follow the transfusion with another 1000 cc. normal saline solution and another 500 cc. of 4.5 per cent sodium citrate was administered to lower the viscosity and the coagulability of the blood.

According to Sollman, the fatal dose of nitro benzol is 1 gram. In our opinion, we believe this patient received approximately three times this fatal dose.

During the next 12 hours the cyanosis cleared, the patient was rational and requested permission to smoke.

He complained only of a very sore throat and mouth. Examination at this time revealed his mouth and pharynx to be badly burned by phenol.

The patient made an uneventful recovery and has resumed his work.

The laboratory findings were:

Slight trace of sugar, also albumen.

On the morning of the 4th:

R.B.C. 3,780,000.
Hemoglobin 62 per cent.
W.B.C. 12,700.
Polymorph 76 per cent.
Monouclear 9 per cent.
Lymphocytes 15 per cent.

On the 7th:

W.B.C. had come down 9,200.
Polymorph 58.
Lymphocytes 25.
Monouclear 14.
Eosinophils 3.

Discharged on the 9th, the blood counts were normal. Still had a trace of albumen that cleared up in a short time.

This patient was seen by Dr. Baum and myself.

I have found in medical literature that there are a number of cases on record where employers in factories have had this poisoning from absorption of shoe dyes and have recovered, but to the best of my knowledge this is the only recorded case where this poison has been swallowed and the patient recovered.

CONCLUSIONS:

1. Patient swallowed approximately three times the fatal dose of nitrobenzol.

2. Nitrobenzol increases the viscosity and lowers the coagulation time of the blood.

3. Nitrobenzol unites with the haemoglobin of the red blood cell much in the same manner as carbon monoxide.

4. Exsanguino transfusion helps to remove excess nitrobenzol from blood stream thus avoiding its chemical union with the transfused blood.

5. Sodium citrate solution 4.5 per cent and normal saline should follow transfusion to lower viscosity and increase coagulation time.

—o—

LIFE

Born of love and hope, of ecstasy and pain, of agony and fear, of tears and joy—dowered with the wealth of two united hearts—held in happy arms, with lips upon life's drifted font, blue-veined and fair, where perfect peace finds perfect form—rocked by willing feet and wooed to shadowy shores of sleep by siren mother singing soft and low—looking with wonder's wide and startled eyes at common things of life and day—taught by want and wish and contact with the things that touch the dimpled flesh of babes—lured by light and flame, and charmed by color's wondrous robes—learning the use of hands and feet, and by the love of mimicry beguiled to utter speech—releasing prisoned thoughts from crabbed and curious marks on soiled and tattered leaves—puzzling the brain wtih crooked numbers and their changing, tangled worth—and so through years of alternating day and night, until the captive grows familiar with the chains and walls and limitations of a life.

And, time runs on in sun and shade, until the one of all the world is wooed and won, and all the lore of love is taught and learned again. Again a home is built with the fair chamber wherein faint dreams, like cool and shadowy vales, divide the billowed hours of love. Again the miracle of a birth—the pain and joy, the kiss of welcome and the cradle-song drowning the drowsy prattle of a babe.

And, then the sense of obligation and of wrong—pity for those who toil and weep—tears for the imprisoned and despised—love for the generous dead, and in the heart the rapture of a high resolve.

And, then ambition, with its lust of pelf and place and power, longing to put upon its breast distinction's worthless badge. Then keener thoughts of men, and eyes that see behind the smiling mask of craft—flattered no more by the obsequious cringe of gain and greed—knowing the uselessness of hoarded gold—of honor bought from those who charge the usury of self-respect—of power that only bends the coward's knees and forces from the lips of fear the lies of praise. Knowing at last the unstudied gesture of esteem, the reverent eyes made rich with honest thought, and holding high above all other things—high as hope's great throbbing star above the darkness of the dead—the love of wife and child and friend.

Then locks of gray and growing love of other days and half-remembered things—then holding withered hands of those who first held his, while over dim and loving eyes death softly presses down the lids of rest.

And so, locking in marriage vows his children's hands and crossing others on the breast of peace, with daughter's babes upon his knees, the white hair mingling with the gold, he journeys on from day to day to that horizon where the dusk is waiting for the night. At last, sitting by the holy hearth of home as evening's embers change from red to gray, he falls asleep within the arms of her he worshiped and adored, feeling upon his pallid lips love's last and holiest kiss.—Pagan Bob.

—o—

INFLUENZA HANGS ON

While the influenza epidemic, which had its start on the Pacific Coast and swept eastward, has been characterized as "mild" by health authorities, many serious complications have followed in its path. Deaths from pneumonia have exceeded previous years and severe colds have persisted even after the epidemic had apparently been checked.

In this emergency physicians report excellent results from the use of Abbott remedies. Among the most widely used are Calcidin, Ephedrine, Ephedrine Butesin Spray, Metaphedrin, M. Catarrhalis Combined Bacterin, Metaphen, Neonal, Sodoxylin and Abbott's Saline Laxative.

A special Influenza circular has been prepared by the Abbott Laboratories, North Chicago. Ill., which will be sent on request.

THE JOURNAL

OF THE

Oklahoma State Medical Association

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief
Barnes Building, Muskogee, Okla.
DR. P. P. NESBITT.....Associate Editor
Palace Building, Tulsa, Okla.

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The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

TULSA HOSPITALS

The city of Tulsa has probably grown to its present proportions faster than any city known to modern times. A little more than fifteen years ago Tulsa was proudly claiming it was a city of 7,500 people. Today it is difficult to estimate what their population really is, but it is probably in the neighborhood of between 140,000 and 160,000 people, with no let-up in its growth. Naturally everything expands as the city expands. Their hospitals, as far as is possible, have kept pace with the phenomenal growth of the city. This is indeed a difficult thing in accomplishment, for hospitals, it is well known, are usually the last great public benefits to be erected.

Oklahoma Hospital. The first hospital in Tulsa was organized by Doctors Fred S. Clinton, J. C. W. Bland, C. L. Reeder and their associates, twenty-three years ago. For years this hospital served the Tulsa public and most of the time it was crowded to more than capacity. From this nucleus Dr. Clinton and Mrs. H. C. C. Ziegeler were able to finance and have erected the present Oklahoma Hospital, which was completed, equipped, ready for occupancy, and opened to the public in August, 1916. The hospital now has departments of X-Ray, physiotherapy, laboratories, modern operating rooms and sterilizing equipment. The normal capacity is 52 beds, but this is expansible to 90 beds in emergency. In June, 1928, the in stitution was rechartered and is now operated as a Masonic institution. Plans are now in formation for an extensive program of expansion.

St. John's Hospital. The first spade of dirt for the erection of St. John's Hospital was moved by General John J. Pershing in February, 1921. The great national financial depression of about that time halted the building of St. John's so that it was not completed and opened to the public until February, 1926. For a long time the concrete super-structure remained unfinished—until the Sisters of the Sorrowful Mother, in 1923, agreed to spend $350,000 in enclosing the structure and finishing a part of it if Tulsa citizens would assist. In October, 1925, a campaign was inaugurated and more than $500,000 was pledged, most of which was collected and used to finish the building into one of the most complete hospitals of the Southwest. During the year ending January, 1929, 5,183 patients were admitted. Its laboratories are very complete. The medical, surgical, pediatrics, obstetrics, X-Ray and emergency departments are closely cooperated. The institution holds the approval of the Americal College of Surgeons. The hospital school for nurses is very complete and a home for nurses will soon be erected. Physicians on the Board of Governors are: Doctors Samuel Goodman, D. M. MacDonald, F. A. Glass, W. G. Lemmon and P. N. Charbonnet, ex-officio. The staff is very large and covers every department of medicine and surgery. The officers being: Doctors P. N. Charbonnet, president; Wade Sisler, vice-president; C. T. Hendershot, secretary.

Morningside Hospital, as an organization has been in existence since 1918, when

it was organized by Mrs. D. I. Brown, now Mrs. D. I. McNulty. Starting on the north side with a capacity of 25 beds, it has grown into architecturally, artistically, medically and surgically, one of the most modern and up-to-date hospitals in the South. It has a capacity of 225 beds. The modern innovations in this hospital must be seen to be appreciated. There is nothing of the routine appearance of a hospital about the institution. The coloring, tints and furnishings of the institution are beautiful indeed. The surgical department has two major operation rooms, rooms for plaster work, cystoscopic room and two minor rooms. Sterilizing apparatus is the most modern obtainable. Surgery is isolated, as is the obstetrical work, one floor being used exclusively for that purpose. More than 150 physicians patronize this hospital. It is fully standardized by the Americal College of Surgeons. The nurses' training school has an enrollment of 75 nurses, is fully accredited by the State Board and carries a full three-year course of training with a degree of Registered Nurse. The present building is entirely new, equipment is completely new, from the tile kitchen to the Solarium on the 6th floor. A nurses' home is already planned for the near future.

The Hospital for Bone and Joint Diseases is a new institution recently opened and devoted to the diagnosis of bone and joint diseases, fractures and allied conditions. It is under the direct supervision of Doctors Wade Sisler, J. E. MacDonald and W. J. Feehan, who are orthopaedists in charge. The hospital has a maximum capacity of 40 patients. The work includes orthopaedic surgery in its entirety. The physiotherapy department includes the electrotherapy, hydrotherapy, medical gymnastics, and even a special swimming pool for children. Heliotherapy is also available.

All together it will be observed that Tulsa is fully abreast of modern times and accomplishments so far as hospitals are concerned and the short time it has had to reach its advanced position.

STATE MEDICAL SOCIETY

The Oklahoma State Medical Society is an integral part of organized medicine founded for the advancement of its members and as a protection to the laity against unscrupulous, designing and unethical physicians. Before a physician can become a member of the State Society, he must of necessity be passed by the Board of Censors, of the respective County Society, and then elected to membership by its members, whereupon he automatically becomes a member of the state society and the national organization. Thus the qualifications, both morally and scientifically, are known by his most intimate confreres and given sanction to participate in the privildeges and benefits to be gained by such an organization.

The State organization looks to the better educational and social advancement of its members by publishing a creditable journal and having a scientific meeting each year as an emporium where there is given a feast of reason and a flow of soul, where every one is allowed to participate in reading of papers and discussions and go back to his clientele a bigger and better man made so by the contact.

A man that does not take advantage of such opportunities stagnates and suffers from dry rot so that his more enterprising brother makes disastrous inroads on his business and he is soon relegated to an inferior position in his community.

Osler was the most consistent attendant of medical societies of any man in modern times. Neither press of business, ill health, or any of the multitudinous excuses which are so frequently offered ever deterred him from attendance and he always learned something, he always gave some enthusiasm to those who were fortunate enough to go and he counted it quite a privilege to meet and discuss the many problems. This was one of the elements in making Osler a great man.

The Oklahoma State Medical Society offers you this year a rare opportunity for enhancement of knowledge, a postgraduate work of exceptional merit, a rest from the routine grind and drudgery, a social oasis by again seeing and meeting the fine class of men who are enrolled in our State Society.—*Lea. A. Riley.*

Editorial Notes—Personal and General

STEPHENS COUNTY MEDICAL SOCIETY were guests of Drs. C. P. Chumley and E. B. Thomasson recently, at a luncheon. Drs. W. J. Wallace and L. M. Sackett, Oklahoma City, were the principal speakers of the occasion. Dr. Wallace read a paper on "Symptoms of Urinary Obstruction" and Dr. Sackett gave a lecture on "Carcinoma of the Cervix."

ADAIR COUNTY MEDICAL SOCIETY met in Westville March 6, the guests of Dr R. L. Sellers.

DR. M. SHADID, Elk City, is taking post graduate work in New York, specializing in X-ray and radium work.

DR. W. P. FITE, Muskogee, attended a meeting of the Southern Association of Clinical Surgeons in New York the last of March.

LOGAN COUNTY MEDICAL SOCIETY met March 26, at Guthrie, for their monthly meeting. Talks were made by Dr. C. S. Branson of Coyle, Dr. C. B. Hill and Dr. L. H. Ritzhaupt of Guthrie.

LINCOLN COUNTY MEDICAL SOCIETY met at Chandler March 7. Papers were read by Drs. J. M. Byrum, Shawnee, and W. P. Cottrell, Chandler.

GARFIELD COUNTY MEDICAL SOCIETY elected the following officers for 1929. President, Dr. A. L. McInnis; Secretary-Treasurer, Dr. John R. Walker.

BRYAN COUNTY MEDICAL SOCIETY were the guests of Dr. and Mrs. H. B. Fuston at a turkey banquet at the Masonic Hall, Bokchito, March 12.

KAY COUNTY MEDICAL SOCIETY met March 21, at Tonkawa. Dr. C. W. Arrendell gave a paper on "Epidemic Meningitis." A round table discussion of the subject followed.

GARFIELD COUNTY MEDICAL SOCIETY'S annual Guest Day will be April 15. On the program are the following: Drs. David Barr, St. Louis; C. C. Dennie, Kansas City; S. J. Burrows. Chicago, and Wade Sisler, Tulsa.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETY met at Weleetka March 18 for their bi-monthly meeting. Addresses by Drs. M. S. Gregory and A. L. Solomon, Oklahoma City, occupied the chief place in the evening's entertainment.

CANADIAN COUNTY MEDICAL SOCIETY met in El Reno March 8. Dr. Balyeat, Oklahoma City, was the principal speaker of the evening. His topic was "Hay Fever and Asthma." Dr. Balyeat demonstrated his lecture by stereoptican slides.

MUSKOGEE COUNTY MEDICAL SOCIETY met March 25. Dr. Fred J. Wilkiemeyer reported a case of cancer of the stomach. Dr. A. L. Stocks read a paper on the X-Ray Treatment of Exophthalmic Goiter. This paper elicited considerable discussion.

DR. and MRS. DAVID AUTREY, Marietta, spent the month of March in the East. After attending the inauguration of President Hoover, traveled to Boston and Battle Creek where Dr. Autrey did some special work in diabetes, pediatrics and dietetics.

OTTAWA COUNTY MEDICAL SOCIETY met at the Baptist Hospital in Miami, March 13. Dr. Wade Sisler, Tulsa, delivered an address on "Hip Fractures," the address being illustrated with lantern slides, as well as cases showing end results of treatment in ankylosed joints.

WOODS COUNTY MEDICAL SOCIETY were the guests of the physicians of Waynoka, March 26. Dr. S. N. Mayberry, Enid, reported a case on "Granuloma Inguinale." Dr. O. E. Templin. Alva, gave a report on "Carbon Monoxide Poisoning." Dr. Paul Champlin, Enid, gave a paper on "Diagnosis and Treatment of Gall Bladder Diseases."

CLEVELAND COUNTY MEDICAL SOCIETY met March 21, at Norman. Dr. W. H. Flesher, Oklahoma City, read a paper on "Early Influences Affecting the Growth of Teeth," and Dr. A. B. Walker, Norman, read a paper on "Relation of Oral Lesions to Systemic Diseases." Pictures were shown during both lectures.

TULSA COUNTY MEDICAL SOCIETY had a special meeting March 18, at which time the guests of the occasion were Drs. Burton Haseltine and A. W. LeForge, Chicago. They presented especially prepared papers, illustrated with slides on "Asthma—Its Causes and Treatment." The program was sponsored by Drs. D. W. and P. C. White who, prior to the meeting, entertained the guests and a number of physicians at the Tulsa Club.

MUSKOGEE COUNTY MEDICAL SOCIETY met March 4, presenting what is conceded to be one of the most interesting programs of its history. The entire meeting was devoted to the various phases of spinal anesthesia. The program evoked very general and pertinent discussion and was as follows: "Technic, Indications and Advantages of Spinal Anesthesia," Dr. Pat Fite; "Contraindications and Causes of Failure in Spinal Anesthesia," Dr. Floyd E. Warterfield; "Blood Pressure During and Following Spinal Anesthesia," Dr. C. V. Rice; General Discussion, Dr. F. W. Ewing and Dr. Brown Oldham

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MUSKOGEE PHYSICIANS recently cooperated under the auspices of the Extension Department of the State University in organizing a course in surgical anatomy and cadaveric surgery. The course is given under the direction of Dr. J. C. Stephenson of the State University, who is head of the anatomy department. The class is composed of Drs. J. H. Laws, Broken Arrow; J. C. Alexander, Okmulgee; I. W. Bollinger, Henryetta, and the following doctors of Muskogee: H. T. Ballantine, F. W. Ewing, E. H. Fite, Pat Fite, A. L. Mobley, I. B. Oldham, Jr., J. G. Rafter, E. J. Rose, H. A. Scott, Claude A. Thompson, Chas. E. White, N. R. Holcombe, A. L. Gregory.

DOCTOR HORACE TAPLEY PRICE

Dr. Horace T. Price, Tulsa, specialist in the treatment of tuberculosis, died in his office in the Medical Arts Building, March 18, 1929, from a stroke of apoplexy.

Born at St. John, New Brunswick, Canada, September 17, 1876. He moved to St. Louis, in 1880, where he graduated from the school of medicine of St. Louis University. He served his apprenticeship at St. John's Hospital, St. Louis. He was an instructor in medicine and medical clinics until he came to Tulsa to engage in general practice, in 1917.

Dr. Price was a charter member of the Kiwanis Club and was active in Masonic circles, being a member of the Oklahoma consistory, the consistory degree of Guthrie and of St. Louis Masonic organizations. He was a member of the board of directors of the National Tuberculosis Association and medical director of the Tulsa County Public Health Association. He was also a member of the Committee on Tuberculosis of the State Medical Association.

He is survived by his wife, two children, his father and one sister.

DOCTOR RUFUS JAY CRABILL

Dr. R. J. Crabill, pioneer physician of Allen, Oklahoma, died at the Holdenville Hospital, February 23, from internal injuries received from a fall.

Dr. Crabill was born in Texas in 1861, and has been a resident of Allen and territory for many years.

He is survived by his wife and five children.

Dr. Crabill, prior to amalgamation of the Medical Societies of Oklahoma and Indian Territory, was for many years Secretary-Treasurer of the Indian Territory Medical Association.

Funeal services were held at the Baptist Church, Allen, February 25, and remains interred in the Allen cemetery.

DOCTOR ALLEN JEFFERSON JETER

Dr. A. J. Jeter of Clinton, died in that city March 10, 1929, as a result of carcinoma of the colon. Born in Louisiana, February 14, 1862, he graduated from the Memphis Hospital Medical College in 1893. Practiced at Plano, Texas, until 1902, moved to Foss, Oklahoma, where he practiced until 1917, when he located at Clinton, where he conducted his work until a short time prior to his death.

Dr. Jeter enjoyed a large practice both at Foss and Clinton. He was also past-president of Custer County Medical Society.

DOCTOR JOHN CRAIG TAYLOR

Dr. John Craig Taylor, a pioneer Oklahoma physician, of Chelsea, Oklahoma, died in the Baptist Hospital, Miami, Oklahoma, March 4, 1929, during an attack of pneumonia.

Dr. Taylor was born at Columbus, Ky., December 28, 1872, was educated in the state of his birth, receiving the degree of Doctor of Medicine from the University of Kentucky, in 1927. Was registered in Indian Territory in 1898, where he has lived and practiced his profession until the time of his death.

Dr. Taylor is survived by his wife and three children. Dr. Taylor was a member of his County Society, Oklahoma State Medical Association, the American Medical Association, and a member of the American College of Physicians, a Methodist and a Mason.

Funeral and burial held at Chelsea, Oklahoma, March 7, 1929.

RESOLUTIONS OF THE ROGERS COUNTY MEDICAL SOCIETY

WHEREAS, the hand of the Giver of all Life has again reached into our midst and has removed from among us one of our number, Dr. John Craig Taylor, Chelsea, Oklahoma, and

WHEREAS, in our counsels and deliberations his voice has ever been raised in the interests of those high ideals of the profession of his choosing, which he cherished, and

WHEREAS, we had come to know, cherish and love him.

THEREFORE, be it resolved by the Rogers County Medical Society that in the passing of Doctor Taylor, the medical profession, not only of Rogers County, but of Northeast Oklahoma, has lost one of its most studious and progressive members and the citizenship of the county one one of its cherished members.

BE IT FURTHER RESOLVED, that a copy of these resolutions be spread on the minute book of the Rogers County Medical Society, a copy mailed the family, a copy furnished the press, and to the Oklahoma State Medical Journal.

R. C. MELOY, M.D.
W. S. MASON, M.D.
W. F. HAYS, M.D

LOCAL ANESTHESIA IN OPHTHALMIC SURGERY

Local anesthesia in ophthalmic surgery is discussed by C. S. O'Brien, Iowa City (Journal A. M. A., Jan. 7, 1928), in all its phases. He feels that local anesthesia is the safest, easiest, and altogether the best method in practically all ophthalmic operations in juveniles and adults. To perfect one's technic, and without this results will be unsatisfactory, it is necessary to make a study of the anatomy of the orbit and surrounding tissues. This is best done by actual dissection.

CONDENSED PROGRAM

THIRTY-SIXTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, MAY 27-28-29, 1929

MONDAY, MAY 27, 1929

(Morning)

9:00 Golf Tournament, throughout the day.

(Afternoon)

1:30 Oklahoma State Pediatric Association—School of Medicine Building.

2:00 Oklahoma Dermatological Association—School of Medicine Building.

3.00 Meeting of the Council, Huckins Hotel.

(Evening)

8:00 Meeting of the House of Delegates—Huckins Hotel.

TUESDAY, MAY 28, 1929

(Morning)

8:00 Meeting of the House of Delegates—School of Medicine Building.

8:30 to 12:00—Clinics

(See clinical program)

(Afternoon)

12:15 to 1:00—Luncheon

School of Medicine Building.

1:00 to 5:00—Section Meetings

School of Medicine Building.

(Evening)

6:00 to 8.00—Dinners

Medical Fraternities, Huckins Hotel

Oklahoma Dermatological Ass'n, Huckins Hotel

Women Physicians' Dinner, Oklahoma Club

Officers Reserve Dinner, Oklahoma Club

8:15 Opening Meeting—Convention Hall, Mezzanine Floor, Huckins Hotel.

WEDNESDAY, MAY 29, 1929

(Morning)

8:00 to 12:00—Clinics

(See clinical program)

(Afternoon)

12:15 to 1:00—Luncheon

School of Medicine Building.

1:00 to 5:00—Section Meetings

School of Medicine Building.

(Evening)

7:30 to 9:00

General Scientific Program of all Sections—Convention Hall, Huckins Hotel.

Orations:

Fractures.....Dr. Wade H. Sisler, Tulsa

Goitre.....Dr. R. M. Howard, Oklahoma City

Pediatrics.....Dr. T. H. McCarley, McAlester

Social Aspects of Tuberculosis—Dr. L. J. Moorman, Oklahoma City

9.00 to 12:00—Reception and Dance
Huckins Hotel

An information desk will be maintained in the lobby of the Huckins Hotel throughout the meeting.

Taxicabs will leave the Huckins Hotel, Tuesday, 7:30 A. M., for the Clinics at the Hospitals.

LADIES' PROGRAM

TUESDAY, MAY 28, 1929

1:00 Luncheon, Oklahoma City Golf and Country Club, followed by a drive to points over the City.

WEDNESDAY, MAY 29, 1929

Matinee Party in afternoon.

CLINICS

The following is a schedule of the Clinics to be held in Oklahoma City, Tuesday and Wednesday. May 28, 29, 1929:

More detailed information as to these Clinics probably will be obtainable at the information desk, Huckins Hotel

Oklahoma City General Hospital

Tuesday, May 28, 1929:

9:00	Dr. Ellis Moore	Genito-Urinary
9:30	Dr. E. R. Davis	Heart
10.00	Dr. C. B. Bondurant	Skin
10:30	Dr. Charles E. Barker	Surgery
11:00	Dr. C. H. Hall	Diseases of Children

Wednesday, May 29, 1929:

9:00	Dr. Oscar White	Surgery
9:30	Dr. J. J. Caviness	Eye
10:00	Dr. J. E. Harbison	Surgery
10.30	Dr. C. M. Pounders	Pediatrics
11:00	Dr. Dick Lowry	Gynecology
11:30	Dr. M. S. Gregory	Nervous and Mental Diseases

University Hospital

Tuesday, May 28, 1929:

8:30	R. L. Murdoch	Rectal Surgery
	V. Kucher	Physical Therapy
9:00	A. B. Chase	Medical
9:30	C. E. Clymer	Surgical
	9:00 to 10:00—W. J. Wallace, B. A. Hays, Rex Bolend, C. B. Taylor	Genito-Urinary
10:00	Wm. Taylor	Pediatrics
10:30	R. M. Howard	Surgical
	10:00 to 11:00—J. F. Kuhn, Joe Kelso, Grider Penrick	Gynecology
11:00	A. W. White, N. P. Eley	Gastro-Intestinal

11:30 Wann Langston.....Medical
11:00 to 12:00—S. R. Cunningham, W. K. West, D. O. Donoghue.....Orthopedics

Wednesday, May 29, 1929:

8:30 to 9:30—J. A. Hatchett, W. W. Wells.....Obstetrics
9:30 J. T. Heatley.....X-Ray Demonstration
10:00 Le Roy Long, Jr.....Surgical
10:30 Le Roy Long, Sr.....Surgical
11:00 C. J. Fishman.....Medical
11:30 E. S. Lain.....Dermatology

Eye, Ear, Nose and Throat—

8:30 to 9:30—E. S. Ferguson, T. G. Wails, L. M. Westfall.
9:30 to 11:00—H. C. Todd, W. E. Dixon.....Ear, Nose, and Throat
11:00 to 12:00—A. L. Guthrie, Chester McHenry.....Bronchoscopic Clinic

St. Anthony's Hospital

Tuesday, May 28, 1929:

8:00- 8:30 Dr. Young.....Neurology
8:30- 9:00 Dr. Early.....Eye, Ear, Nose, Throat
9.00- 9:30 Dr. Myers.....X-Ray
9:30-10:00 Dr. Von Wedel.....Plastic Surgery
10:00-10:30 Dr. Allen.....Obstetrics
10:30-11:00 Dr. La Motte.....Medicine
11:00-11:30 Dr. McBride.....Orthopedics
11:30-12:00 Dr. Soloman.....Pediatrics

Wednesday, May 29, 1929:

8:00- 8:30 Dr. Smith.....Gynecology
8:30- 9:00 Dr. McHenry.....Eye, Ear, Nose and Throat
9:00- 9:30 Dr. Lea Riely.....Diabetes
9:30-10:00 Dr. John Riley.....Surgery
10:00-10.30 Dr. Lelia Andrews.....Medical Gynecology
10:30-11:00 Dr. Horace Reed.....Surgery
11:00-11:30 Dr. J. T. Martin.....Gastro-Intestinal
11:30-1200 Dr. L. J. Moorman.....Tuberculosis

Wesley Hospital

Tuesday, May, 28, 1929:

9:00—10:00

No. 4—Surgery.....Dr. R. B. Hunter
No. 2—Orthopedic Surgery.....Dr. Elias Margo
No. 1—Surgical Urology.....Dr. J. Z. Mraz
No. X—Pediatrics.....Dr. J. H. Garrison
No. 7—Obst. & Gynecology.....Dr. J. H. Robinson

10:00—11:00

No. 1—Goitre.....Dr. A. L. Blesh
No. Z—Medical.....Dr. Nathan Boggs
No. 2—Surgical.....Dr. S. E. Frierson
No. 4—Eye, Ear, Nose, Throat.....Dr. J. C. Macdonald
No. X—G-I.....Dr. D. D. Paulus
No. 1—Goitre.....Dr. W. W. Rucks

11:00—12:00

No. X—Obstetrics.....Dr. J. G. Binkley
No. Z—Obstetrics & Gynecology.....Dr. A. G. Hirshfield

Wednesday, May 29, 1929:

9:00—10:00

No. Z—Medical.....Dr. P. M. McNeill
No. 2—Surgical Gynecology.....Dr. F. M. Sanger

10.00—11:00

No. 4—Eye, Ear, Nose and Throat.....Dr. Fred B. Hicks
No. X—Diabetes.....Dr. D. D. Paulus
No. 2—Surgical Gynecology.....Dr. L. M. Sackett

11:00—12:00

No. 1—Goitre.....Dr. A. L. Blesh
No. X—Fracture.....Dr. Wm. H. Bailey
No. N—Nervous-Mental.....Dr. F. B. Erwin
No. 1—Goitre.....Dr. W. W. Rucks

COMMITTEES

The following is a list of all Committees of the Annual Meeting:

Dr. Arthur W. White, General Chairman

ADVISORY:

Drs. Le Roy Long, Sr., A. L. Blesh, R. M. Howard, Charles E. Barker, A B. Chase, J. F. Kuhn.

CLINICS:

Drs. Le Roy Long, Sr., A. L. Blesh, R. M. Howard, Charles E. Barker, P. M. McNeill, A. D. Young, John Z. Mraz, J. E. Harbison.

FINANCE:

Drs. A. B. Chase, Horace Reed. L. A. Riely, C. J. Fishman.

STATIONERY AND BADGES:

Drs. W. W. Wells, W. E. Dixon, G L. Borecky.

ENTERTAINMENT:

Drs. C. E. Clymer, G. Penick, D. W. Branham, W. F. Eastland, R. O. Early.

BUILDING:

Drs. J. M. Thuringer, H. G. Jeter, L. J. Starry. Rex Bolend, H. H. Turner.

ADVERTISING:

Drs. J. A. Roddy, L. A. Riely, A. D. Young, W. W. Rucks, J. M. Postelle, M. E. Stout.

GOLF:

Drs. S. R Cunningham, P M. McNeill, Horace Reed, W. W. Wells, R. O. Early.

RESERVE OFFICERS:

Captain W. E. McCormick, J. A. Roddy, Floyd J. Bolend.

FRATERNAL DINNERS:

Drs. J. P. McGee, A. C. Shuler, N. Price Eley, Rex Bolend, C. E. Clymer.

WOMEN PHYSICIANS:

Dr. Lelia E. Andrews:

WOMEN'S ENTERTAINMENT:

Mrs. S. E. Frierson, Mrs. W. K. West, Mrs. A. R. Lewis, Mrs. L. M. Westfall, Mrs. M. M. Roland, Mrs. A. L. Blesh.

MUSIC:

Drs. Dick Lowry, Tom Lowry.

HOTELS:

Drs. L. J. Starry, J. B. Eskridge, H. D. Collins, C. E. Bates.

TUBERCULOSIS

Edited By
L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

The Mind and Tuberculosis: Ben Wolepor, American Review of Tuberculosis, March, 1929.

The opinions of various authors, as to the effect tuberculosis has on the mind, are briefly given.

A study was made of one hundred patients. A mental history was obtained from each one, stress was laid upon his reaction to life before tuberculosis was contracted. Forty patients exhibited neurasthenic symptoms; eighty per cent of this group had far advanced, five per cent had moderately advanced and fifteen per cent had minimal pulmonary tuberculosis. Forty-four patients had a "shut-in" character, the remaining fifty-six were sociable and "good mixers."

The types of personality met with are described as (1) the rebellious, (2) the phlegmatic, (3) the pessimistic, (4) the optimistic, and (5) the restless, apprehensive. Group one consisted of twenty-two patients; there were sixteen in group two; twelve in group three; seven in group four; and forty-three in group five. Sixty of the patients examined did not manifest any neurasthenic symptoms before or during their attack of pulmonary tuberculosis. In one patient neurasthenic symptoms appeared three years before the onset of pulmonary tuberculosis. Only one case manifested a stormy mental onset with his tuberculosis.

The results of these studies leads to the conclusion that there is no relationship between dementia praecox and pulmonary tuberculosis. The praecox develops as a rule upon the basis of a seclusive personality and yet only forty-four per cent of the tuberculosis patients examined were of the "shut-in" type. Among the patients whose mental disease was complicated by pulmonary tuberculosis forty-six per cent had insanity present in their family, and twenty-one per cent had tuberculosis present in the immediate family.

Pulmonary tuberculosis brings to light inherent characteristics. It accentuates the mental traits of the patient, but it cannot produce a psychopathology of its own. It is true that a patient failing rapidly from pulmonary tuberculosis may maintain a secure confidence in his ability to regain his health. He is optimistic, but this mood is due, not to the specific tuberculous toxin, but to different factors. Tuberculosis is often marked by its remissions and exacerbations; a flare which frightens the patient is often succeeded by a subsidence in the disease and gives the patient hope. He assumes that because he has overcome one exacerbation that he will successfully triumph over succeeding ones.

The Cauterization of Adhesions in Artificial Pneumothorax by the Jacobaeus-Unverricht Method of Closed Pneumolysis: Ralph C. Matson, American Review of Tuberculosis, March, 1929.

The success of artificial pneumothorax is almost in direct proportion to the number and character of adhesions present and preventing satisfactory collapse of the lung. In 1913 Jacobaeus of Stockholm devised a method of dividing adhesions by means of a galvano cautery, introduced at one point through the chest wall and operated under the guidance of a thoracoscope inserted through the chest wall at another point.

The original Jacobaeus instrument had a limited and reduced field of vision making the operation difficult. In 1922 Unverricht developed a thoracoscope equipped with a Zeiss system of lenses that gave a superb view. Meanwhile, Jacobaeus has improved his instrument. Indications are: (1) unsatisfactory pneumothorax on account of incomplete collapse of the lung because of strings, bands and folds of adhesions. (2) satisfactory pneumothorax in spite of adhesions, when high intrathoracic pressure is necessary to maintain the collapse, with consequent danger of lung rupture. and when pressure is causing uncomfortable symptoms, such as phrenic dyspepsia, coughing, paroxyms, etc. (3) Satisfactory pneumothorax in which bands of adhesions have become organized, causing early expansion of the collapsed lung in cases in which the pneumothorax has not been maintained sufficiently long.

Contraindications. (1) Cauterization should not be done during an acute formation of exudate. (2) Acute pyothorax.

Selection of cases should be made only after a careful study of steroscopic X-ray films taken before the pneumothorax and during its entire course. String adhesions do not all show on the x-ray films.

Results: The author has done one hundred cauterization operations during the past three years with the following results: Clinically successful, seventy-four; technically successful, clinically unsuccessful: bilateral pneumothorax, one; technically and clinically unsuccessful, twenty-five. The greatest success was achieved in the string and band type of adhesions.

Complications: Serous exudate, before operation, forty-two. Developed after operation, forty-eight. Purulent exudate (tuberculous), before operation, two. Developed after operation, sixteen. Purulent exudate (nontuberculous), before operation, none; developed after operation, none; hemorrhage (moderate; easily controlled by cautery), one; severe reactions (high fever, etc.), seven; shock or serious operative complications, none.

The technique of the operation is given with illustrations.

Lung Abscess vs. Gangrene. Diagnosis and Treatment: B. S. Kline, Cleveland, Jama., June 23, 1928, P. 2008.

Gangrene of lungs more frequent in adults than in children and, in last four years, more frequent than abscess at Mt. Sinai Hospital, Cleveland.

Pulmonary abscess unassociated septic focus elsewhere has fair prognosis.

Gangrene more serious, due to organisms from mouth.

In pulmonary abscess: Sputum yellowish, mucopurulent or purulent, little odor, with pyogenic organisms.

In pulmonary gangrene: Sputum foul, grayish or grayish green, shows spirochetes, fusiform bacilli, and vibrios in smears stained with strong fuchrin solution.

Careful sputum examination sufficient for different diagnosis.

Pulmonary gangrene does not respond well to treatment for abscess, but are often cured by arsephenamine treatment. Importance of different diagnosis, which so often is not made—W.A.F.

Tuberculosis of the Kidney. Pathogenesis and Treatment: California and W. Medical, May, 1928, P. 683.

Refers to pathological studies by Halle published in the British Medical Journal in which Halle recognizes a distinct hematogenous type, as well as a lymphogenous infection. In the former the bacteria lodge in the parenchyma; in the latter the infection spreads from the hilus to the pelvic mucosa.

Medlar (American Journal of Pathology, 2:40, January 14, 1926) examined by serial section a number of kidneys of patients dying of pulmonary tuberculosis. Found microscopic evidence of tuberculosis in practically all cases, some very minute and apparently healed.

Fullerton (British Medical Journal, 2:630, 1927) reviews statistics in support of view that in unilateral tuberculosis of kidney the best results follow early removal of the kidney.—W.A.F.

Tuberculosis of Lymph Glands: Diagnosis: Lymphangitis With Tuberculin Test: Frederick Eberson, M.D., San Francisco, American Journal of Diseases of Children, January, 1925, P. 29.

Streaks of lymphangitis in relation to positive skin tuberculin test is pathognomic of tuberculosis with an active focus of glandular origin. Reports studies of one hundred and thirty-five juvenile patients and ten adults.

Reaction occurs within twenty-four to forty-eight hours. Red streaks two to ten centimeters long. Infiltrated lymphogenous band may extend to axilla. Adjacent lymph glands indurated and palpable. Temperature rises one to two degrees. Reaction fades in twenty-four to forty-eight hours. —W.A.F.

Tuberculosis: Pathogenesis: Primary Foci. Foci of Reinfection:—Max Pinner, William H. Maybury, San. (Detroit Municipal Tuberculosis Sanatorium, American Review of Tuberculosis, Juné 1928, P. 601.

(1)

Anatomical characteristics: Primary focus is a small exudative focus (miliary broncho-pneumonia) undergoing rapid caseation. Exudative origin proved by fact that elastic tissue structure is preserved and not pushed aside as in proliferative lesion. This caseated center is soon surrounded by productive tubercles which probably produce the inner "specific" capsule of later stages, consisting of broad hyaline connective tissue fibres; the outer non-specific capsule consists of ordinary connective tissue, probably the product of the non-specific inflammatory reaction surrounding the primary focus. The draining lymph glands are always affected.—W.A.F.

(2)

The primary lymph node shows complete caseation surrounded by a dense capsule, the structure of the remaining lymph tissue being not materially changed.

The lymph node of later infection shows sluggish multiple productive tubercles with varying extent of central caseation and without a definite capsule. The structure of the remaining lymph tissue shows, as a rule, hypertrophic adenitis and hyalinization of some of the reticular elements.

Primary focus also usually located close to the pleura and rarely at the apex—in other words, the best aerated parts of the pulmonary parenchyma are most frequently affected.—W.A.F.

(3

In re-infection there is accentuation of both exudative and proliferative features. "For any given state of allergy the dosage of the re-infecting organism is the factor which determines whether allergy means immunity or hypersusceptibility, prolongation or shortening of life."

Allergy and immunity are coexisting but not identical, and one is not a direct measure of the other.

The dominant early feature is exudation (rather than proliferation). It may go on to complete caseation or may completely resorb, leaving the field to productive lesions. The former is the most dangerous course of tuberculosis, the latter the most ideal way of healing.—W.A.F.

(4)

Stages in tuberculous infection according to Ranke: first stage—localized parenchymatous and lymphoglandular lesion.

Second stage. Generalization by various routes —lymphogenous, hematogenous, intracanalicular and direct expansion—acute exudative reaction at site of metastasis, circumfocal inflammation, frequently rapid caseation.

Third stage. With time the hypersensitiveness decreases and immunity increases. Lymphogenous and hematogenous metastases decrease and finally cease and extension, if at all, only intra-canalicularly and by contact.

According to Krause two mechanisms are effective in limiting expansion of the disease: (1) Immunological processes. (2) Increased lymphoid tissue and narrowing of lymph channels in adults as compared to children.—W.A.F.

Tuberculosis of the Common Crow—A Preliminary Study: Charles A. Mitchell and R. C. Duthie, American Review of Tuberculosis, Feb., 1929.

The author reports that a careful review of the literature reveals very few reports of tuberculosis of wild animals or birds in their natural environment, and then only when raised under more or less artificial conditions in close association with domesticated animals or birds.

In February, 1928, the authors received at their laboratory thirty-six common crows shipped from Western Ontario, where these birds were reported to be dying in large numbers from a disease simulating "ocular roup" as encountered in domesticated birds.

At autopsy five of the crows were found to have fairly extensive and well defined lesions of tuberculosis. In four the lesions were confined mainly to the liver, with a moderate invasion of the spleen; acid fast bacilli were relatively few, and were short and comparatively plump. The other bird had extensive nodular tuberculosis of the spleen, three large nodular tubercles on the serous surface of the gizzard and numerous pin point

miliary tubercles in the liver. Acid fast microorganisms were numerous, long, slender and beaded.

They have examined in all forty crows, six, or fifteen per cent of which have shown well defined tuberculous lesions in which acid fast microorganisms could be demonstrated.

Lesion inoculations showed the organism to be pathogenic for chickens, guinea pigs and rabbits.

Diaphragmatic Studies in Tuberculosis. Paul D. Crimm, American Review of Tuberculosis, Feb. 1929.

As one of the most important muscles involved in the act of respiration, the diaphragm alone increases the longitudinal diameter of the thorax. In conjunction with the excursion of the ribs the diaphragm creates the negative barometric pressure of the pleural cavity. A routine study of the respiratory muscles assists in the earliest possible diagnosis of pulmonary lesions.

In this series of one hundred cases examinations of the costal margins were performed and the direction and character of movement noted in each case. Ninety-four per cent of the cases showed disparity in the costal margin movement. Eighty-four per cent showed the costal margin on the side most involved to move at lesser distance from the median line. The disparity of movement is due, not only to the abnormal alterations in the arch of the diaphragm, and greater or lesser activation of the diaphragm, but also to the deactivation of the intercostal muscles.

Pregnancy and Pulmonary Tuberculosis: Arthur H. Morse, American Review of Tuberculosis, February, 1929.

The most common theories which have been advanced to support the contention that the reproductive process as a whole deleteriously influences a coexistant pulmonary tuberculosis are: the upward displacement of the diaphragm associated with the enlargement of the uterus is said to diminish the capacity of the pleural cavities and to limit the expansion of the lungs, thus causing a slowing and decrease of circulation in the lungs. Dohrn has shown that the capacity of the lungs is not decreased under these circumstances due to the fact that the diminished height of the pleural cavities is compensated by an increase in width. Gross points out that as the result of an artificial pneumothorax the pulmonary circulation is disturbed, but the patient is usually benefitted.

Significance is attached by some to changes in certain constituents of the blood. A decrease in the lipolytic ferment is said to occur in pregnancy, leading to a lowered resistance as a result of the inability of the serum to dissolve the fatty or waxy substances of the capsule of the bacillus, but certain investigators report the lipoid content of the blood is greatly increased during pregnancy, and there is no satisfactory evidence, from a bacteriological point of view, that these ferments act in any direct way upon the bacillus. Others are impressed by increase in the cholesterin content of the blood during pregnancy, and suggest that the extension of the pulmonary infection depends upon the fact that the tubercle bacillus thrives more favorably upon a nutriment rich in cholesterin. This view is based upon experiments in vitro, but there is no evidence that a similar activity occurs in the body. Still others believe that the need of calcium by the developing fetus calls upon the calcified pulmonary nodules, thus leading to a dissolution of these structures and a dissemination of tubercle bacilli. Contrary opinions hold that, as a result of increased absorption and decreased excretion, a sufficient increase of calcium occurs to fully care for the fetal needs.

The untoward influences of the puerperium are believed to depend in the first place upon the increased respiratory efforts associated with the second stage of labor, or to the sudden descent of the diaphragm following delivery, thus causing a dissemination of bacilli from the upper to the lower portions of the lungs. In the second place, bacilli are thought to be transferred into the blood stream of the uterus as a result, during the placental stage of the tearing through of tuberculous foci situated in the decidua basalis. The opinions and methods of treatment of eminent physicians are cited.

The first requisite in order to make accurate observations and to approach a uniform conclusion regarding this question is to include a large number of cases which can be observed over an extended period, for the results obtained from the restricted observation of a small number of cases are misleading. It would seem necessary, also, to review these patients in groups, the division of the groups being based upon the character and extent of the pulmonary lesion and upon the duration and normal or abnormal character of the pregnancy. The study should be undertaken as a cooperative effort on the part of trained specialists in pulmonary diseases and competent obstetricians.

Bronchiectasis: Harold Brunn and Wm. B. Faulkner, Jr., American Review of Tuberculosis, February, 1929.

Many factors which lead up to this condition are mechanical in nature and may be both intra and extra-bronchial, producing more or less occlusion of the bronchus and thereby permitting the free ingress of air, but not its complete expulsion. This may be caused by foreign bodies, tumors, viscid mucous plugs, enlarged lymph nodes, etc. Antecedent infection is stressed as the important necessary corollary in the production of bronchial dilatation. Infections of the bronchial tree, chronic in nature, with exacerbations, causes, first, round cell infiltration and later the production of peribronchial fibrous tissue with damage to the walls of the bronchus.

Associated sinus disease frequently occurs in cases of bronchiectasis. Very frequently, changes in climate, which so ofen affects sinus trouble favorably plays an important part in the improvement which takes place in the pulmonary condition.

The authors state that it has been their experience in a few instances in which operation seemed justifiable, to find, upon carrying out hygienic and drainage methods along with a thorough cleaning up of the sinuses, that the bronchiectatic condition changed from a rather severe to a mild disorder, and they feel that the incidence of bronchiectasis might be diminished in its inception in a certain proportion of cases by the early recognition and treatment of sinus troubles in early life following the infectious diseases of childhood.

The use of lipiodol is virtually essential not only

for the diagnosis, but because its shows the extent of the disease, the number of lobes involved, whether it is bilateral and on which side the disease is most extensive, all of which are most important in the decision as to treatment.

The use of the bronchoscope is also important. Artificial pneumothorax informs us whether or not there are dense adhesions around the lung, but as drainage is the main problem, its use as a treatment of the disease may prevent rather than facilitate it and thereby lead to an extension rather than improvement.

The different operative procedures that have been undertaken are described.

Preliminary treatment which consists of rest in bed, sunlight, postural drainage, the use of the bronchoscope, cleaning up of the sinuses, possibly the use of vaccines and in cases of spirochetal infections the use of neosalvarsan is essential with most patients before any operative procedure is undertaken.

The authors have had five cases in which the operation of lobectomy has been done, as outlined by Lilienthal, and modified from time to time. They have had one death due to hemorrhage.

Illustrations of the operation accompany the article and the procedure is fully described in the January Archives of Surgery.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D
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Arthrodesis: W. Rowley Bristow, British J. Surg., xv, 401, January, 1928.

The author calls attention to an increase in the number of arthrodeses being done since the war. The indications are pain and loss of function. The causative agents are usually arthritis, trauma and paralysis.

While wholesale arthrodesis of tubercular joints is not advocated, he believes it should be done if the bone is involved, chiefly in the knees and hip joints.

The technique of extra-articular and intra-articular arthrodesis is reviewed. Arthrodesis of the ankle is advised for traumatic arthritis arising from a malunited ankle joint fracture. The technique of Wilson in subastragaloid arthrodesis of Hibbs in spinal fusion are approved.

Reconstruction of the hip is preferred to ankylosis. The operation is simpler and the period of fixation is less. The procedure described by Hoke and by Dunn is the one employed in the paralytic deformities of the foot.

Treatment of Fractures of the Os Calcis by Arthrodesis of the Subastragalar Joint—A Report of Twenty-six Cases: Philip D. Wilson, J. Am. Med. Assn., lxxxix, 1676, November 12, 1927.

Fractures in the os calcis are severe disabilities, and the prognosis for good recovery is poor. They are usually fissured, or comminuted, and involve the calcaneo-astragalar joint. The body of the os calcis spreads outward and forward, leaving the foot in pronation, and with uneven fragments on the articular surface.

On healing, this rough articular area produces arthritic changes and limited motion with an unsatisfactory function in the foot. The methods in use, manipulation, moulding, and lengthening the tendo Achillis, have not yielded desirable results.

The operation of astragalar arthrodesis, including the cuboid and scaphoid joint in a few cases, resulted in bony ankylosis in the operated joints, and good results with only a slight difference in general mobility in the foot, as compared to the limited motion following the more conservative treatment.

The best results were in early operation, two or four weeks after the injury, when the average postoperative disability was five and one-half months. Later operations gave eight months disability. The operation is not advised for all fractures, but should be done when the comminution involves the joint surface.

Treatment of Ankle and Leg Fractures by the "Delbet" Ambulatory Plaster Splint: E. Leslie Robert, British J. Surg., xv, 414, January, 1928.

This method is used in ankle fractures of abduction and adduction etiology with lateral displacement of the astragalus, and in melleolar fractures with anterior or posterior displacement of the astragalus. It is also used in closed fractures of the tibia, the torsion variety of both bones fracture, in transverse fractures of both bones, and in some cases as a secondary splint for open fractures. The advantage of the method lie in the fact that weight-bearing may be started within two or three weeks, active knee and ankle motion is possible and the patient may return to work in this splint in from four to six weeks.

The Delbet plaster is prepared by using numerous layers of book muslin cut in the proper shape and dipping them in plaster cream before application. The leg is placed on a large board. Two splints are applied to the sides of the leg below the tibial tubercule, coming down below the malleoli. A third plaster encircles the first two at the lower border of the tibial tubercle. The fourth one fits snugly behind the heel and crosses over the crest of the tibia. The skin is greased before the application. Strips of calico bandage are placed over the plaster to hold them in place while drying.

Recent ankle fractures are treated by a box splint with elevation of the foot on pillows, x-rays, a general anaesthetic, and reduction by manipulation within forty-eight hours, with application of the Delbet splint.

Of twenty-four recent ankle fractures treated in this way, the average date of commencement of walking was fourteen days, of removal of plaster and cessation of all treatment fifty-two and two-tenths days, of abandoning sticks (21 cases), thirty-five days. The dates of returning to work are not given. There were five poor results.

In fourteen cases of leg fractures treated by Delbet method, the average period of treatment was sixty-two days.

Operative Treatment of Serratus Muscle Paralysis (Scapula Alata) C. Th. Willich. Arch. f. Orthop. u Unfall-Chir., xxv, 516, October 25, 1927

In serratus paralysis one can readily observe that a passive fixation of the scapula against the

thorax favors a partial restoration of motion of the humerus. For this reason operative procedures consisted in fixing the scapula to the thorax. Unfortunately many methods have not lead to permanent results. The author's modification of the fixation operation consists of the following:

Through a fifteen-centimeter incision, the vertebral margin of the scapula and spine are exposed. The scapula is drilled through, and through the drill-hole a wig of fourfold thick silk is drawn and fixed to the supraspinal or infraspinal ligament between the seventh and eighth spinous processes. The silk wig is tunnelled under the trapezius and latissimus dorsi muscles. Now, a piece of fascia lata three centimeters by fifteen centimeters is obtained and carried through the drill-hole of the scapular angle. This fascial strip is wound around the masses of the altissimus and trapezius muscles, thus encircling them and drawing them toward the scapular angle. Further, the ninth rib is exposed, and the interior angle of the scapula is attached to it in the posterior axillary line. The incision is closed. The arm is placed in right angle abduction, and left so for two weeks. Three weeks after the operation gradual motion is commenced. The author claims very good results six months after the operation.

EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D.
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Osteomyelitis of the Superior Maxilla in the Nursing Infant (L'osteomyelite du maxillaire superieur chez le nourrisson): Terracol, J.: Arch. internat. de laryngol., xxxiv, 532, 1928.

The author reviews the embryology of the maxillary sinus and its anatomy in the newborn infant.

He states that osteomyelitis of the superior maxilla in the infant is rare. Panzel found seven cases among 15,000 patients. Terracol has seen only two such cases. He believes that as a rule the portal of entry of the infection is the mouth, but that in some cases may be the antrum. According to Broca, the zone of growth of the teeth plays a part similar to that played by the epiphyseal cartilage in the long bones. The gingivitis associated with eruption of the teeth is followed by folliculitis and the folliculitis by osteitis, the whole bone soon becoming involved.

In the beginning, the child may cry and refuse to nurse, but there are no localizing signs. Soon, however, there is a unilateral swelling of the face associated frequently with closure of the eye, infiltration of the eyelids, and chemosis. The skin of the jaw becomes red and the veins dilate. Occasionally the inflammation suggests erysipelas. Palpation is very painful and the tissues are hot and hard. There is a marked contrast between the half of the palate that is normal and the half that is swollen. Fluctuation is soon noted, and a fistula may form at the edge of the tooth socket, at the inner angle of the eye, or in the edge of the orbit. If it is formed at the edge of the tooth socket the germ of the tooth may be expelled. Frequently two teeth are lost, the canine and the premolar. The fistula rarely forms in the vault of the palate. There is always a nasal discharge.

As in other forms of osteomyelitis, the acute phase is succeeded by a chronic phase. Pus and sequestra are discharged, and probing reveals denuded bone. Feeding is difficult because it is painful, and the osteomyelitis may be followed by septicaemia with multiple visceral localizations.

Operation should be performed as soon as the diagnosis is made. The principles to be followed are the same as for osteomyelitis elsewhere—incision of the soft parts and trephining of the bone. If a fistula has already formed, the skin opening should be enlarged, the bone curetted, fungosities or sequestra removed, and drainage established. If a fistula has not formed, the operation should be performed through the mouth in order that disfigurement may be avoided. Without any anaesthesia or with only slight infiltration of the mocous membrane with 1 per cent novocain, an incision should be made down to the bone and the bone trephined and curetted. The operation should be performed rapidly. Care must be taken not to curette too deeply as it is impossible to tell the exact extent of the lesion in young spongy bone and there is danger of bringing about a blood infection. After the curettage, the walls should be touched with a weak solution of zinc chloride and the cavity drained. Drainage may be made through the nose. Sometimes furthur collections of pus are formed. These are especially apt to occur beneath the orbit and must be incised. Cicatrization should be slow and should occur from the bottom of the wound toward the surface. Vaccines may be used as a supplement to the operative measures. The late results are good.

In all of Broca's cases the face remained perfectly symmetrical. The vault of the palate and the nasal fossae also remained normal in shape, but as the teeth corresponding to the expelled tooth germs were lacking, a prosthesis was necessary later.

Ultraviolet Light in the Treatment of Ophthalmic Disease: Duke-Elder, W. S.: Brit. J. Ophth, xii, 289, 1928.

This article is a report of the results obtained in 425 cases of opththalmic disease which were treated by general and local phototherapy at the Royal London Ophthalmic Hospital.

Clinically, the most obvious effect of radiation is the production of an erythema in the skin, an increase in the bactericidal power of the blood, a slight erythrocytosis, an increase in the haemoglobin and platelets, a decrease in the polymorphonuclear cells, and an increase in the lymphocytes, eosinophiles, calcium, phosphorus, and iron.

The great majority of cases respond within a reasonably narrow margin, but the site of the lesion and the individual variation of each patient render a routine dosage based on a standard test inexpedient and unsafe. The best basis for dosage is the erythema of the skin and the bactericidal power of the blood, which seem to be correlated.

In the treatment, the body is divided into three areas: the chest and front of the abdomen, the back, and the legs. Each of these is radiated on alternate sittings, the dose being gradually increased. The vapor lamp is used at first and then the carbon arc. Twenty treatments are given, and after a rest of from two to three weeks they are repeated if necessary.

Not only the effect on the eye condition, but also the general tonic effect is very marked. The patient feels better and stronger, gains weight,

and sleeps better; the appetite increases, and the general immunity of the body is raised. The most marked improvement is noted in children.

The dangers of the treatment are overdosage and idiosyncrasy of the patient.

Overdosage causes general depression, drowsiness, fatigue, loss of energy and appetite, headache, irritability, and insomnia. Patients with a low blood pressure require smaller doses than others and show the signs of overdosage quickly. The presence of a fever is a contra-indication to the treatment. During menstruation, the doses must be reduced if signs of overdosage appear.

An erythema of high degree is associated with more discomfort than danger; healing occurs without scarring. No sequelae such as follow X-ray dermatitis have been reported. There is no danger of epithelioma despite the finding of active mitosis in the basal layer of the skin.

The eyes should be protected at all times because the ultraviolet light may cause a painful photophthalmia, scotomata, cataract, or conjunctivitis.

The effects of ultraviolet light treatment are best demonstrated in the chronic and intractable cases of iridocyclitis. The pain is relieved, the eye becomes white, corneal precipitates clear up, pupillary adhesions break, the vitreous clears, and vision improves. In tuberculosis, the average response is good, but in syphilis the response is always poor.

The author believes that most failures of the treatment are due to excessive dosage. In the cases of choroiditis, scleritis, and keratitis reviewed the results were generally good even when the condition was severe and chronic. In the case of interstital keratitis, the ultraviolet light was of no benefit except that it exerted a tonic effect on the general health. Corneal ulcers responded better to local irradiation than to the general light baths. No improvement was noted in corneal opacities. Recurrect hordeola, tuberculous dacryocystitis, and the conjunctivitis associated with debilitating disease, coryza, and hay fever reacted well to general light treatment.

The Proteins of the Lens and Their Chemical Changes in the Pathogenesis of Senile Cataract: Tassman, I. S.. Arch. Ophth., lvii, 361, 1928.

While many new studies on cataract have been made in recent years, there is still much to be learned regarding the various chemical changes taking place in the proteins of the lens. It is known, however, that the total proteins constitute about 35 per cent of the lens mass and consist of a soluble and an insoluble portion. The soluble portion makes up 52 per cent of the total mass, and the insoluble portion 48 per cent. The soluble portion contains alpha crystallin, beta crystallin, and an albumin. The alpha crystallin forms 37 per cent, the beta crystallin, 63 per cent, and the albumin, 1 per cent of the soluble protein. The alpha crystallin is found mainly in the external or cortical part of the lens and the beta crystallin mostly in the more central part. The albumin shows no noticeable distribution. The insoluble protein or framework is found to increase from within outward.

Lens proteins, like other proteins, yield a positive reaction wtih sodium nitroprusside and ammonia. In this reaction, the beta crystallin is stronger than the alpha crystallin and the insoluble albuminoid is negative. The reaction is said to depend upon the presence of cystein. Its intensity decreases as the two crystallins vanish from the lens until, in mature cataracts, it becomes entirely absent. This seems to suggest that opacities follow a reduction of the soluble crystallins, but our knowledge regarding the relationship of the chemical changes in the proteins of the lens to the pathogenesis of senile cataract is still incomplete.

Some Observations on Nasopharyngeal Epidemics in Public Schools: Glover, J. A.: Proc. Roy. Soc. Med., London., xxi, 1593, 1928.

Glover states that over 80 per cent of the illnesses occurring in school children are transmitted by droplet infection. He believes that some of the increase of sickness in the public schools is apparent rather than real, being explained by greater attention to minor febricula. The true increase he attributes to the increased prevalence of influenza, the aftermath of the great epidemic of 1918, and the increased demands for public school education which has led to overcrowding.

The most common droplet infections are influenza, feverish colds, chills, pyrexias of unknown origin, and tonsillitis. The regular infectious diseases are comparatively infrequent. The author discusses the incidence, bacteriological findings, and incidence of pneumonia, otitis media, and tonsillitis.

In the prophylaxis, vaccines are uncertain. There is some evidence, however, that they may diminish the incidence of complications. If used, they should be administered before the danger period, i.e., not later than November.

Intensive prophylaxis other than the use of vaccines should include: (1) special efforts to prevent children from returning to school after the holidays infected wtih influenza or febricula; (2) records of the temperature for three weeks after their return; (3) immediate isolation of all children with pyrexia and catarrh; (4) the forbidding of work before breakfast for at least the first six weeks of the term; (5) a rule that all hot baths and showers taken during the day or after games should be followed by a cold shower; (6) the prevention of chilling during games; and (7) increased provisions for dry clothing.

Infection takes place mainly in sleeping quarters. Therefore proper spacing out of the beds and thorough cross-ventilation in dormitories are of paramount importance. The author cites instances of cross-infection due to the proximity of beds and reviews the standards of wall space, floor space, and cubit space laid down by the Royal Commission, Board of Education.

Masked Mastoiditis in Children up to the Age of Two Years: Macneil F. A. Canadian M. Assn. J., 1928, xviii, 688.

Macneil states that mastoiditis in infants and young children has been recognized in the early stages only within the past few years. The delay in its recognition is frequently due to the fact that the symptoms in the baby are not the symptoms in the adult. The ear symptoms in the infant are frequently masked by gastro-intestinal symp-

toms. Therefore the importance of a thorough otological examination in cases of gastro-intestinal symptoms cannot be overestimated. In the author's opinion, mastoiditis in infants is quite common and its mortality can be considerably reduced only by closer cooperation between the pediatrist and the otologist.

Constitutional Deafness. (1) Definition. (2) Elevation of Lower Tone Limit—A New Conception: Gottlieb, M. J. Laryngoscope. 1928 xxxviii, 306.

Gottlieb defines constitutional deafness as deafness with a progressive course which is associated with a constant elevation of the lower tone limit, a negative Rinne test, abnormal blood chemistry, and a variable contraction of the visual fields for form and color. He ascribes this form of deafness to a disease process in the membranous portion of the cochlea, particularly in the cochlear nerve and its branches. The elevation of the lower tone limit he believes is due to circulatory changes in the cochlear artery caused by toxaemia and affecting the nerve fibers to the upper coil of the cochlea which are believed to lie in the center of the nerve.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

The Eczema-Asthma-Prurigo-Complex. R. Cranston Low, Brit. J. Dermat., 40:389, October, 1928.

This subject is discussed in detail with numerous references to the current literature. The material is studied under the following sub-headings: Prurigo and eczema; association of eczema and asthma; protein skin tests; blood changes in asthma; heredity; ichthyosis; and the alteration of eczema and asthma. The author comments freely on the lack of space given these subjects in modern text-books of dermatology, and feels that the whole subject should be discussed thoroughly in the light of modern conception of their association with anaphylaxis and sensitization. He found in a statistical study a considerable number of cases of chronic eczema there was a history of asthma and vice-versa. The fact that both chronic eczema and asthma give positive skin reaction to various proteins suggests that in cases of combined cases of asthma and eczema the same protein is a common cause. The author cites cases to confirm this observation. It is his experience that the younger the patient the more frequently food proteins are responsible, while in later life animal emanations, dust, and bacteria enzymes from focal infection are an important etiology. He gives some valuable comments on the relation of dermatitis venenata or eczema due to an external cause to which the skin is sensitized and states that the corresponding lesion in the respiratory tract is hay-fever. He concludes that, pathologically and clinically, these diseases are analagous in every respect. This being so, it is surprising that this complex does not more often occur in the same patient.

On the Psychic and Nervous Component of the so-called Allergic Skin Diseases and Their Treatment: W. T. Sack, Brit. J. Dermat., 40:442, November, 1928.

In his examination of the mental condition of all patients coming to him as a skin specialist, Sack was struck by a common association between diseases of the skin (especially pruriginous ones) and the mental emotional irritation. In many cases he was able to succeed, by hypnotism alone, to cause pruritis, which had resisted all other treatment, to disappear entirely. In speaking of allergy, Sack states that it imputes a complete change in the whole organism, and though manifested in special organs, it brings the question down to the problem of the whole constitution of the individual. He mentions that recent publications seem to show that the similarity of allergic reactions on the skin may not be based on this quality alone, but may rest also on specific alterations of the autonomic nervous system. In some cases the same symptoms noted in allergic diseases are found and not the slightest sign of allergy can be demonstrated, as in cases in which the symptoms are produced by purely psychic factors. It is established that a correlation exists between the autonomic nervous system and the endocrines, and that mal-function in one is accompanied by disorderly action in the other. Working on this basis the author used a synthetic ephedrine with favorable results.

Melanoma (Melanotic Sarcoma) of Ovary With Discoloration of Skin: J. R. Miller, New England J. Med., 199:830, November, 1928.

Miller reports a case of melanoma involving the ovaries and suprarenals which is thought to have been primary in a pigmented mole. The case presented an unusual feature hitherto unmentioned in the literature, namely, a uniform discoloration of the skin of the entire body. It was credited as being due to the presence of a soluble melanin in the blood stream, though the influence of involvement of the suprarenals cannot be disregarded, especially as there is no record of the blood pressure or blood sugar examination. No other tumors were noted.

Burning Sensation of the Tongue Caused by Hyperacidity: J. Sellei, Deutsche Med. Wchnschr, 54:1758, October, 1928.

The chemical examination of saliva in patients with a sensation of burning of the tongue yielded normal results. The idea was entertained that the trouble might be caused by sharp teeth or the material used in dental work, but was dismissed after investigation. But on further examination most of the patients were found to present a condition of hyperacidity, anacidity was found only occasionally. Pernicious anemia should always be suspected when the latter observation is made. The gastric juice and the blood should always be examined in every case of burning tongue. The question of tapeworm should receive attention.

Treatment of Skin Disease Without Gauze Dressings: A. Strauss, Med. Klin., 24:1512, September, 1928.

For a covering of the skin to avoid gauze dressings, Strauss used the following: Liq. pet. 4 parts, glycerine 8 parts, starch, zinc oxide and distilled water of each one hundred parts. He used various medicines added to this mixture as a base according to the case. This preparation has the consistency of an ointment and the advantage that it does not become brittle after it has had time to dry. Another preparation he suggests is his water

soluble varnish: Tragacanth 3 parts, zinc oxide 10 parts, an ointment base composed of anhydrous wool fat and paraffin 100 parts, and distilled water 100 parts. Small quantities of eosin and sulphonated bitumen may be used to tint the mixture for cosmetic tastes. If the cooling action is to be desired a two per cent solution of aluminum acetate may be used instead of the water. For a deeper action the following basic formula may be of use. Starch 10 parts, zinc oxide 5 parts, beeswax 1 part, the ointment base first mentioned 40 parts, and distilled water 100 parts. The author suggests this as a preventative against tissue eczema and similar conditions.

Can Syphilis Be Transmitted by Lip-Stick? A. Buschke and A. Joseph, Med. Welt, 2:1417, September, 1928.

A girl who had borrowed a lipstick from a friend five years before presented a typical chancre on the upper lip. To find out whether or not infection from this source is possible, Buschke and Joseph put some serum from a chancre on a lip stick and kept it at room temperature and moistened it with physiological salt solution after 24 hours and found the spirochetes motionless. Cultures of spirochates dried for two hours still showed motile spirochates. The spirochates on a lipstick are protected from the harmful effect of light and the possibility of such an infection is feasable since the mucus membrane of the lip may have erosions into which the spirochates may be inoculated.

Miliary Tuberculosis of the Skin: E. J. Meijers, Nederl. Maandschr. v. Geneeek., 15:346, 1928.

A report of a child of two which was brought to the clinic with a symptom complex of meningitis. The father of the child had recently died of open tuberculosis. The entire skin of the face was covered wtih round papules and the extremities were covered with a like condition. Most of these were covered over in the center and were the size of a pinhead. A vesicle could occasionally be found. The efflorescence bore a striking resemblance to papulonecrotic tuberculids, they were not hemorrhagic. The X-ray picture of the lungs showed a typical picture of miliary tuberculosis. The general condition of the child grew rapidly worse, although the tuberculids showed a tendency to heal and no new ones occurred. Upon examination after necropsy under the epithelium in the cutis a few giant cells could be found, tuberculosis bacilli were not found.

BOOK REVIEWS

Angina Pectoris by Harlow Brooks, M.D., 176 pages. Prices $2.50. Harper & Brothers, Publishers, New York City.

The second volume of the Harper medical monographs entitled "Angina Pectoris" has been written by Harlow Brooks, M.D., Professor of Clinical Medicine, New York University, and Consulting Physician to New York's largest hospitals.

Angina Pectoris is likely to receive too little attention from the practicing physician, or it is accepted as a fatal syndrome. The author has discussed the etiology, so far as it is known at the present time and has given careful consideration to the pathology, and pathologic physiology as developed from his observations. Symptomatology, including obscure types of the syndrome, differential diagnosis, especially between true and false angina, and detailed treatment are presented clearly and comprehensively.

Dr. Brooks assumes a new outlook for angina patients or those predisposed to it by reason of heredity or other etiological factors. He advances the idea that angina may not be fatal or that if treated in its early stages, the result may be regarded as an effective cure. It is possible, writes this authority, to so regulate the lives of those predisposed to this condition, that they may escape it.

The author of this volume writes from personal experience in New York's largest hospitals. The book is not a review of the literature already published but is a thorough study of the subject from the consulting physician's viewpoint. Dr. Brooks lays particular stress on the treatments which should be given in these cases and under certain conditions.

These new publications in the Harper Medical Monographs are attractively priced, compact in form and authoritative, designed to give the general practitioner a complete and up-to-date library on individual diseases, methods of treatment, etc. The advisory editorial board for this series includes a group of eminent authorities in the medical profession. This series should be of great value to physicians who now find it difficult to keep abreast of the latest developments because of the size and complexity of the literature, and the expensiveness and bulk of the average medical book.

Thrombo-Angiitis Obliterans—Clinical, Physiologic and Pathologic Studies, by George E. Brown, M.D., and Edgar V. Allen, M.D., Division of Medicine, Mayo Clinic, Collaborating in Pathology with Howard R. Mahorner, M.D., Fellow in Surgery, The Mayo Foundation. 12mo of 219 pages with 62 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $3.00 net.

This book deals with a baffling and intriguing disease. These cases have only to be seen to at once challenge the curiosity and commiseration of the observer. Early diagnosis is difficult and treatment is extremely difficult. This little volume undertakes a consideration of the principal features from history and etiology to treatment and prognosis.

Gynecology, by William P. Graves, M.D., Professor of Gynecology at Harvard Medical School. Fourth edition, thoroughly revised. Octavo volume of 1016 pages, with 562 illustrations, 128 in colors, Philadelphia and London: W. B. Saunders Company 1928. Cloth. $10.50 net.

This fourth edition of an already well known work has been brought thoroughly up to date. Such subjects as physiology of menstruation and ovulation, endocrinology and organotherapy have been re-written. There are new chapters on the present knowledge of cancer, and etiology. Endometriosis has been given exhaustive comment while the entire subject of sterility, including the latest ideas of etiology and treatment has been re-written. This is a very valuable volume for the student and practitioner.

Principles and Practice of Obstetrics, by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Fifth

edition, thoroughly revised. Large octavo of 1140 pages, with 1128 illustrations, 201 in colors. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $12.00 net.

Professor DeLee is too well known an authority on obstetrical matters to need introduction. This great volume evidences the master hand of the artist throughout its rich pages. No student or practitioner interested in obstetrics can afford to be without this work. Its scope includes every maneuver, procedure and measure which has been proven worthy of use.

Pediatrics for the General Practitioner, by Harry Monroe McClanahan, A.M., M.D., Professor of Pediatrics Emeritus, University of Nebraska, member of the American Pediatric Society, ex-president of the Nebraska State Medical Association. Cloth, 606 pages, 230 illustrations. Philadelphia: J. B. Lippincott.

This book represents a modern clinical picture of the diagnosis, treatment and management of infants and children. It is written in the belief that sick infants and children are and will continue to be under the care of the family physician and to the family physician this authority attempts to appeal. The work is finely illustrated and should appeal to those having the responsibility of the infant problem at heart.

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